Getting Started

Mbox® 2

Version 7.3

Copyright

PN 9320-55985-00 REV A 1/07

Communications and Safety Regulation Information

Compliance Statement
This model Digidesign Mbox 2 complies with the following standards regulating interference and EMC:

- FCC Part 15 Class B
- EN 55022
- EN 55204
- AS/NZS 3548 Class B
- CISPR 22 Class B

Radio and Television Interference
This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules.

DECLARATION OF CONFORMITY

We Digidesign,

2001 Junipero Serra Boulevard, Suite 200

Daly City, CA 94014 USA

tel: 650-731-6300

declare under our sole responsibility that the product

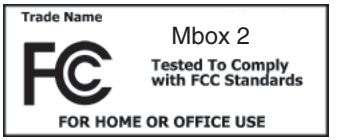
Mbox 2

complies with Part 15 of FCC Rules.

Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try and correct the interference by one or more of the following measures:

- Reorient or locate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.



Any modifications to the unit, unless expressly approved by Digidesign, could void the user's authority to operate the equipment.

Canadian Compliance Statement:

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

Australian Compliance

European Compliance

CE

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chapter 1

Installation QuickStart

Windows Installation Overview

(Windows Systems Only)

Installing the Mbox 2 on a Windows computer includes the following steps:

1 "Windows System Optimization" on page 9.

2 "Installing Pro Tools LE and Connecting Mbox 2" on page 13.

3 "Launching Pro Tools LE" on page 14.

4 "Configuring Pro Tools LE" on page 14.

5 Making audio and MIDI connections to the Mbox 2. (See Chapter 6, "Making Hardware Connections" for details.)

Mac Installation Overview

(Mac OS X Systems Only)

Installation of the Mbox 2 on a Mac includes the following steps:

1 "Mac System Optimization" on page 21.

2 "Installing Pro Tools LE" on page 23.

3 "Connecting Mbox 2 to the Computer" on page 23.

4 "Launching Pro Tools LE" on page 24.

5 "Configuring Pro Tools LE" on page 25.

6 Making audio connections to the Mbox 2. (See Chapter 6, "Making Hardware Connections" for details.)

chapter 2

Welcome to Mbox 2

Welcome to the Mbox® 2 audio/MIDI production system from Digidesign®.

Mbox 2 provides your USB-equipped computer with two channels of analog audio input and output, two channels of digital audio input and output, MIDI In and Out ports, analog monitor outs, and a headphone output with front panel level control. Mbox 2 provides professional-quality mic preamps and 24-bit analog-to-digital and digital-to-analog converters.

Mbox 2 Package

The Mbox 2 package includes the following:

- Mbox 2 desktop audio interface
- Pro Tools Installer disc containing Pro Tools LE™ software, DigiRack RTAS (Real-Time AudioSuite) and AudioSuite plug-ins, optional software, and electronic PDF guides
- This *Getting Started Guide*, covering installation, configuration, and common tasks for your Pro Tools system.
- USB connector cable
- Digidesign Registration Information Card

Mbox 2 Features

The Mbox 2 provides the following:

- Two channels of analog audio input with microphone preamps and switchable 48V phantom power
  - Analog input jacks include one XLR and two 1/4-inch connectors (one TRS, one TS), with switchable Mic, Line, and DI levels
  - –20 dB pad available separately on each analog input channel
- Two channels of S/PDIF digital input and output
  - S/PDIF inputs are available independently, in addition to analog inputs 1–2
  - S/PDIF outputs mirror analog outs 1–2
- Up to a total of four channels of input, using analog and digital inputs simultaneously
- One MIDI In and one MIDI Out port, providing 16 MIDI input channels and 16 MIDI output channels
- Two 1/4-inch TRS analog monitor outputs
- 24-bit A/D and D/A converters, supporting sample rates of 44.1 kHz and 48 kHz
- Zero-latency analog record monitoring with adjustable balance between input and playback
- Mono switch for enhanced monitoring of single-channel input sources (does not affect recording)
- 1/4-inch *(*TRS*)* stereo headphone output with adjustable level control
- USB-powered operation

Mbox 2 will not function properly if connected to a passive USB hub. If you need to use a hub for other USB peripherals, use a powered hub or a separate dedicated USB port for Mbox 2 to function properly.

Pro Tools LE Capabilities

Pro Tools LE software provides the following capabilities with Mbox 2:

- Playback of up to 32 mono digital audio tracks, and of playback up to 28 tracks while recording up to 4 tracks, depending on your computer's capabilities
- Up to 128 audio tracks (with 32 voiceable tracks maximum), 64 video tracks, 128 Auxiliary Input tracks, 64 Master Fader tracks, 256 MIDI tracks, and 32 Instrument tracks per session
- 16-bit or 24-bit audio resolution, at sample rates up to 48 kHz
- Non-destructive, random-access editing and mix automation
- Audio processing with up to 5 RTAS plug-ins per track, depending on your computer's capabilities
- Up to 5 inserts per track
- Up to 10 sends per track
- Up to 32 internal mix busses

Pro Tools LE uses your computer's CPU to mix and process audio tracks (host processing). Computers with faster clock speeds yield higher track counts and more plug-in processing.

System Requirements

Mbox 2 can be used with a Digidesign-qualified Windows or Mac computer running Pro Tools LE software.

For complete system requirements, visit the Digidesign website (www.digidesign.com).

Compatibility Information

Digidesign can only assure compatibility and provide support for hardware and software it has tested and approved.

For a list of Digidesign-qualified computers, operating systems, hard drives, and third-party devices, refer to the latest compatibility information on the Digidesign website (www.digidesign.com).

MIDI Requirements

Mbox 2 includes one MIDI In port and one MIDI Out port, providing 16 channels of MIDI input and 16 channels of MIDI output.

If you require additional MIDI ports, add a MIDI interface to your system.

USB MIDI interfaces work effectively with Pro Tools systems on Windows or Mac. Serial MIDI interfaces are supported on Windows systems only.

⚠ *Only USB MIDI interfaces are compatible with Pro Tools systems for Mac OS X. Modem-to-serial port adapters and serial MIDI devices are not supported.*

For a list of supported adapters, visit the Digidesign website (www.digidesign.com).

Hard Drive Requirements

For optimal audio recording and playback, all Pro Tools systems require one or more Digidesign-qualified drives.

For a list of Digidesign-qualified hard drives, visit the Digidesign website (www.digidesign.com).

If you are using an ATA/IDE or FireWire hard drive, initialize your drive with Windows Disk Management (Windows) or the Disk Utility application included with Apple System software (Mac).

For more information, see Appendix C, "Hard Drive Configuration and Maintenance."

Avoid Recording to the System Drive

Recording to your system drive is not recommended. Recording and playback on a system drive may result in lower track counts and fewer plug-ins.

⚠ *Digidesign does not recommend recording to the system drive. Record to a system drive only when necessary.*

Digidesign Registration

Review the enclosed Digidesign Registration Information Card and follow the instructions on it to quickly register your purchase online. Registering your purchase is the only way you can be eligible to receive complimentary technical support and future upgrade offers. It is one of the most important steps you can take as a new user.

About the Pro Tools Guides

This Getting Started guide explains how to install Pro Tools LE software, make basic connections to your Mbox 2 interface (to get sound in and out of your interface), and do common tasks (such as recording in Pro Tools).

In addition to any printed guides or documentation included with your system, PDF versions of Pro Tools guides and Read Mes are installed automatically with Pro Tools.

The main guides (such as the *Pro Tools Reference Guide* and the *Pro Tools Menus Guide*) are accessible from the Pro Tools Help menu.

- *Pro Tools Reference Guide* explains Pro Tools software in detail.
- *Pro Tools Menus Guide* covers all the Pro Tools on-screen menus.
- *DigiRack Plug-Ins Guide* explains how to use the RTAS and AudioSuite plug-ins included with Pro Tools.
- *Digidesign Plug-Ins Guide* explains how to use optional Digidesign plug-ins.
- *Pro Tools Shortcuts* lists keyboard and Right-click shortcuts for Pro Tools.

These guides and other guides are installed on your startup drive during installation. To view or print PDF guides, you can use Adobe Reader or Apple Preview (Mac only).

Printed copies of the Pro Tools Reference Guide and other guides in the Pro Tools guide set can be purchased separately from the DigiStore (www.digidesign.com).

Conventions Used in This Guide

Digidesign guides use the following conventions to indicate menu choices and key commands:

Convention	Action
File > Save	Choose Save from the File menu
Control+N	Hold down the Control key and press the N key
Control-click	Hold down the Control key and click the mouse button
Right-click	Click with the right mouse button

The following symbols are used to highlight important information:

User Tips are helpful hints for getting the most from your Pro Tools system.

Important Notices include information that could affect your data or the performance of your system.

Shortcuts show you useful keyboard or mouse shortcuts.

Cross References point to related sections in other Digidesign guides.

About www.digidesign.com

The Digidesign website (www.digidesign.com) is your best source for information to help you get the most out of your Pro Tools system. The following are just a few of the services and features available.

Registration Register your purchase online. See the enclosed Digidesign Registration Information Card for instructions.

Support Contact Digidesign Technical Support or Customer Service; download software updates and the latest online manuals; browse the Compatibility documents for system requirements; search the online Answerbase; join the worldwide Pro Tools community on the Digidesign User Conference.

Training and Education Become a certified Pro Tools Operator or Expert; study on your own using courses available online, or find out how you can learn in a classroom setting at a certified Pro Tools Training Center.

Products and Developers Learn about Digidesign products; download demo software; learn about our Development Partners and their plug-ins, applications, and hardware.

News and Events Get the latest news from Digidesign; sign up for a Pro Tools demo.

To learn more about these and other resources available from Digidesign, visit the Digidesign website (www.digidesign.com).

chapter 3

Windows Configuration

This chapter contains information for Windows systems only. If you are installing Pro Tools on a Mac computer, see Chapter 4, "Mac Configuration."

⚠ *Before installing this version of Pro Tools, refer to the Read Me information included on the Pro Tools LE Installer disc.*

Installation Overview

Installing the Mbox 2 on a Windows computer includes the following steps:

1 "Windows System Optimization" on page 9.

2 "Installing Pro Tools LE and Connecting Mbox 2" on page 13.

3 "Launching Pro Tools LE" on page 14.

4 "Configuring Pro Tools LE" on page 14.

5 Making audio and MIDI connections to the Mbox 2. (See Chapter 6, "Making Hardware Connections" for details.)

Windows System Optimization

Before configuring your computer, make sure you are logged in as an Administrator for the account where you want to install Pro Tools. For details on Administrator privileges, refer to your Windows documentation.

Required Optimizations

To ensure optimum performance with Pro Tools LE, configure the following settings before you install Pro Tools hardware and software.

⚠ *When you are finished changing Windows system settings, restart your computer.*

Enabling DMA

Enabling your computer's DMA (Direct Memory Access) frees up CPU bandwidth so the computer can do other Pro Tools tasks.

In most cases the DMA option will already be set correctly, as Windows XP detects and activates DMA mode by default.

To enable DMA for any IDE hard drives:

1 Choose Start > Control Panel.

2 In Classic View, double-click System.

3 Click the Hardware tab.

4 Under Device Manager, choose Device Manager.

5 In the Device Manager window, double-click IDE ATA/ATAPI controllers, then double-click the Primary IDE Channel for your IDE hard drive.

6 Click the Advanced Settings tab.

7 For each device, set the Transfer Mode to "DMA if available," and click OK.

8 Repeat steps 5–7 for any additional IDE Channels.

9 Close the Computer Management window.

Disabling System Standby and Power Management

When using Pro Tools, the Windows System Standby power scheme must be set to Always On. This helps prevent long record or playback passes from stopping due to system resources powering down.

To configure Windows Power Management:

1 Choose Start > Control Panel.

2 Double-click Power Options.

3 Click the Power Schemes tab.

4 From the Power Schemes pop-up menu, select Always On.

5 Click OK.

This sets System Standby, System Hibernate, and "Turn off hard disks" to Never.

On AMD processors, be sure to check and disable Cool N'Quiet in the System BIOS (in the Cool & Quiet Configuration section). Refer to the manufacturer's documentation for instructions on disabling this power option, if necessary.

Disabling ClearType Font Smoothing

When using Pro Tools, the Effects "Clear Type" setting must be disabled.

To disable ClearType font smoothing:

1 Choose Start > Control Panel.

2 Double-click Display.

3 Click the Appearance tab.

4 Click Effects.

5 Deselect "Use the following method to smooth edges of screen fonts."

6 Click OK to save your settings and close the Effects dialog.

7 Click OK.

8 Restart the computer.

Recommended Optimizations

Pro Tools can also be affected by other software and hardware drivers installed on your computer. It is recommended (but not required) that you do the following:

- Avoid running any unneeded programs at the same time as Pro Tools.
- Turn off any software utilities that run in the background, such as Windows Messenger, calendars, and disk maintenance programs.
- Turn off any nonessential USB devices while running Pro Tools.
- If your video display card supports it, enable Bus Mastering in the manufacturer's Control Panel. Refer to the manufacturer's instructions for details.

Optional Optimizations

The following system optimizations may help Pro Tools perform better on some systems. It is recommended that you only try these optimizations if necessary, as they may disable or adversely affect the functionality of other programs on your system.

Disabling Network Cards

If applicable, disable any networking cards (other than a FireWire card that you might use to connect an external drive to your system).

To disable a network card:

1 Right-click My Computer and choose Manage.

2 Under System Tools, select Device Manager.

3 In the Device Manager window, double-click Network adapters, then double-click the Network Adapter card you want to disable.

4 Under the General tab, choose "Do not use this device (disable)" from the Device Usage pop-up menu, and click OK.

5 Close the Computer Management window.

Adjusting Processor Scheduling

To Adjust Processor Scheduling Performance:

1 Choose Start > Control Panel.

2 In Classic View, double-click System.

3 Click the Advanced tab.

4 Under the Performance section, click the Settings button.

5 In the Performance Options window, click the Advanced tab.

6 Under the Processor scheduling section, select the Background Services option.

7 Under the Memory Usage section, select the System cache option.

8 Click OK to close the Performance Options window.

9 Click OK to close the System Properties window.

10 Restart the computer for the changes to take effect.

Disabling Hyper-Threading

Pro Tools LE takes advantage of the added processing power of computers that have multiple processors, or that feature multi-core processing or Hyper-Threading, for RTAS processing.

However, if you set the number of processors available for RTAS processing to 1 (in the Pro Tools Playback Engine dialog), some computers with hyperthreading capability may experience decreased performance.

If this occurs, you can increase the number of RTAS processors in the Playback Engine dialog, or you can disable Hyper-Threading on the computer.

Refer to your computer's documentation for steps on how to enter the computer's BIOS and disable Hyper-Threading.

Disabling System Startup Items

The fewer items in use by your computer, the more resources are available for Pro Tools. Some startup applications may be consuming unnecessary CPU resources, and should be turned off.

If you disable any of the following startup items, do so carefully:

- Portable media serial number (required for applications that utilize a copy protection key)
- Plug and play
- Event log
- Cryptographic services
- DHCP Client, TCP/IP Net BIOS, and other networking-related items (unless the computer has no network or internet connection, in which case these items can be disabled)

To Disable System Startup Items:

1 From the Start menu, choose Run.

2 Type "msconfig" and click OK. The System Configuration Utility opens.

3 Under the General tab, choose Selective Startup.

4 Deselect Load Startup Items and click OK.

5 Click Restart to restart the computer.

6 After restarting, the computer displays a System Configuration message. Check to see if Pro Tools performance has increased before you deselect the "Don't show this message again" option. If performance has not changed, run "msconfig" and return your computer Selective Startup back to Normal Startup. Alternatively, try disabling Startup items and non-essential processes individually.

Installing Pro Tools LE and Connecting Mbox 2

⚠ *Windows will display several messages during installation that can be ignored, including multiple "Found New Hardware" dialogs and "A Problem Occurred During Hardware Installation."*

To install Pro Tools LE:

1 Start Windows, logging in with Administrator privileges. For details on Administrator privileges, refer to your Windows documentation.

2 Connect the small end of the included USB cable to the USB port on Mbox 2.

⚠ *Mbox 2 may not function properly if connected to a USB hub. If you need to use a hub for other USB peripherals, connect the hub to a separate USB port; Mbox 2 must have a dedicated port in order to function properly.*

3 Connect the other end of the USB cable to any available USB port on your computer. Wait for the Found New Hardware Wizard dialog to appear and leave it open: Do not click Next.

4 Insert the Pro Tools LE Installer disc for Windows in your CD/DVD drive.

5 On the Installer disc, locate and open the Pro Tools Installer folder.

6 Double-click the Setup icon.

7 Follow the on-screen instructions to proceed with installation.

8 Select the install location. For maximum reliability, install Pro Tools on your startup drive.

9 Click Next.

10 Select the Pro Tools application for installation.

11 You can also select from a list of optional items to install along with Pro Tools.

Mac HFS+ Disk Support Option This option lets your Pro Tools system read, write, record, and play back using Mac-formatted HFS+ disks. HFS+ disks are commonly referred to as Mac OS Extended disks.

DigiTranslator DigiTranslator™ is a software option for Pro Tools that lets you convert and exchange OMF and AAF sequences and MXF files directly in the Pro Tools application. This option is purchased separately.

Command|8 Controller and Driver The Command|8 Driver is required if you are using the Digidesign Command|8 control surface.

MP3 Export Option The MP3 Export Option lets you export MP3 files from Pro Tools. This option is purchased separately.

12 Click Next.

13 Click Install.

⚠ *Windows will display several messages during installation that can be ignored, including multiple "Found New Hardware" dialogs and "A Problem Occurred During Hardware Installation."*

⚠ *If you get a warning dialog about the driver not passing Windows Logo testing, click Continue Anyway.*

14 Wait for the installer to finish installing all software components, drivers, and PACE System files before proceeding to the next step.

15 When installation is complete, click Finish.

Installing QuickTime

QuickTime is required for Pro Tools if you plan to include movie files, or import MP3 or MP4 (AAC) files in your sessions. QuickTime for Windows XP is available as a free download from the Apple website (www.apple.com).

⚠ *For information on which version of QuickTime is compatible with your version of Pro Tools, visit the compatibility pages of the Digidesign website (www.digidesign.com).*

To install QuickTime:

1 Visit www.apple.com and go to the QuickTime page.

2 Download the QuickTime installer application to your computer.

3 Double-click the QuickTime installer application and follow the on-screen installation instructions.

4 Restart your computer.

⚠ *If the USB LED on the front panel of the Mbox 2 does not illuminate after installation, try unplugging the USB cable from the Mbox 2 USB port, and plugging it back in. If the USB LED still does not illuminate, shut down the computer, disconnect Mbox 2 and start the computer. Once the computer has fully restarted, reconnect Mbox 2.*

The Pro Tools Installer disc includes additional software for your system. For more information, see "Additional Software on the Pro Tools Installer Disc" on page 18.

Launching Pro Tools LE

When launching Pro Tools LE the first time, you are prompted to enter an authorization code.

To authorize Pro Tools LE software:

1 Double-click the Pro Tools LE shortcut on your desktop (or the application icon in the Pro Tools folder inside the Digidesign folder).

2 Enter the authorization code in the dialog (making sure to type it exactly as printed, and observing any spaces and capitalization), then click Validate.

Your authorization code is located on the inside front cover of this guide.

Configuring Pro Tools LE

Pro Tools System Settings

Pro Tools LE lets you adjust the performance of your system by changing *system settings* that affect its capacity for processing, playback, and recording.

In most cases, the default settings for your system provide optimum performance, but you may want to adjust them to accommodate large or processing-intensive Pro Tools sessions.

Hardware Buffer Size

The Hardware Buffer Size (H/W Buffer Size) controls the size of the buffer used to handle host processing tasks such as Real-Time AudioSuite (RTAS) plug-ins. The H/W Buffer setting can also be used to manage monitoring latency.

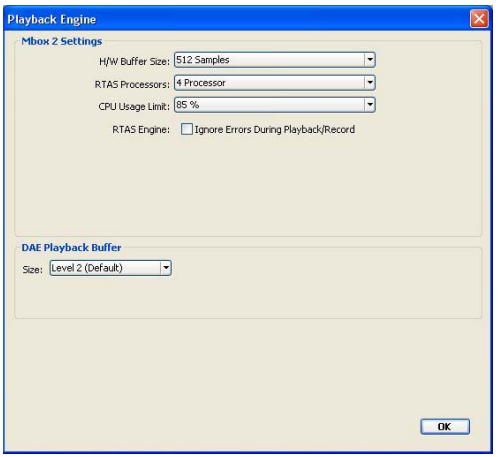
◆ Lower Hardware Buffer Size settings reduce monitoring latency, and are useful when you are recording live input.

◆ Higher Hardware Buffer Size settings allow for more audio processing and effects, and are useful when you are mixing and using more RTAS plug-ins.

⚠ *In addition to causing slower screen response and monitoring latency, higher Hardware Buffer Size settings can increase the latency caused by RTAS plug-ins, and affect the accuracy of plug-in automation, mute data, and MIDI track timing.*

To change the Hardware Buffer Size:

1 Choose Setup > Playback Engine.



Playback Engine dialog for Mbox 2

2 From the H/W Buffer Size pop-up menu, select the audio buffer size, in samples.

3 Click OK.

RTAS Processors

The RTAS Processors setting determines the number of processors in your computer allocated for RTAS plug-in processing.

With computers that have multiple processors, or that feature multi-core processing or hyper-threading, this setting lets you enable multi-processor support for RTAS processes. Used in combination with the CPU Usage Limit setting, the RTAS Processors setting lets you control the way RTAS processing and other Pro Tools tasks are carried out by the system.

◆ A higher number of processors reserves more CPU processing capacity for RTAS plug-in processing. This is useful for sessions with large number of RTAS plug-ins.

◆ A lower number of processors leaves more CPU processing capacity for automation, screen redraws, and video playback in Pro Tools, or for other application running at the same time as Pro Tools.

To set the number of RTAS Processors:

1 Choose Setup > Playback Engine.

2 From the RTAS Processors pop-up menu, select the number of available processors you want to allocate for RTAS plug-in processing.

3 Click OK.

CPU Usage Limit

The CPU Usage Limit controls the percentage of CPU resources allocated to Pro Tools host processing tasks. Used in combination with the RTAS Processors setting, the CPU Usage Limit setting lets you control the way Pro Tools tasks are carried out by the system.

◆ Lower CPU Usage Limit settings limit the effect of Pro Tools processing on other CPU-intensive tasks, such as screen redraws, and are useful when you are experiencing slow system response, or when running other applications at the same time as Pro Tools.

◆ Higher CPU Usage Limit settings allocate more processing power to Pro Tools, and are useful for playing back large sessions or using more real-time plug-ins.

The maximum available CPU Usage Limit depends on the number of processors in your computer and on the number of processors you specify for RTAS processing. This value can range from 85 percent for single-processor computers to 99 percent for multi-processor computers.

⚠ *Increasing the CPU Usage Limit may slow down screen response on slower computers.*

To change the CPU Usage Limit:

1 Choose Setup > Playback Engine.

2 From the CPU Usage Limit pop-up menu, select the percentage of CPU processing you want to allocate to Pro Tools.

3 Click OK.

RTAS Engine (RTAS Error Suppression)

The RTAS Engine option determines RTAS error reporting during playback and recording. This is especially useful when working with instrument plug-ins.

You should only enable RTAS error suppression if you are experiencing frequent RTAS errors that are interrupting your creative workflow. When RTAS error suppression is enabled, you can experience a degradation of audio quality. However, this may be acceptable in order to avoid interrupting playback and recording when working with instrument plug-ins. Be sure to disable RTAS error suppression when you need to ensure the highest possible audio quality, such as for a final mix.

There is one RTAS Engine option:

Ignore Errors During Playback/Record When enabled, Pro Tools continues to play and record even if the RTAS processing requirements exceed the selected CPU Usage Limit. This can result in pops and clicks in the audio, but does not stop the transport.

To enable RTAS error suppression:

1 Choose Setup > Playback Engine.

2 Select Ignore Errors During Playback/Record.

3 Click OK.

DAE Playback Buffer Size

The DAE Playback Buffer Size determines the amount of memory DAE allocates for disk buffers. The optimum DAE Playback Buffer Size for most disk operations is Level 2.

◆ DAE Playback Buffer Size settings lower than Level 2 may improve playback and recording initiation speed, but may make it difficult to play or record tracks reliably with sessions containing a large number of tracks or a high density of edits, or with systems that have slower or heavily fragmented hard drives.

◆ DAE Playback Buffer Size settings higher than Level 2 will allow for a higher density of edits in a session or a higher track count when using slower hard drives. However, a higher setting can also cause a time lag to occur when starting playback or recording, or longer audible time lag while editing during playback.

💡 *Using a larger DAE Playback Buffer Size leaves less system memory for other tasks. The default setting of Level 2 is recommended unless you are encountering -9073 ("Disk too slow or fragmented") errors.*

To change the DAE Playback Buffer Size:

1 Choose Setup > Playback Engine.

2 From the DAE Playback Buffer pop-up menu, select a buffer size.

3 Click OK.

Pro Tools Hardware Settings

Pro Tools lets you set the default sample rate and clock source for your system, as well as a range of controls specific to each type of audio interface.

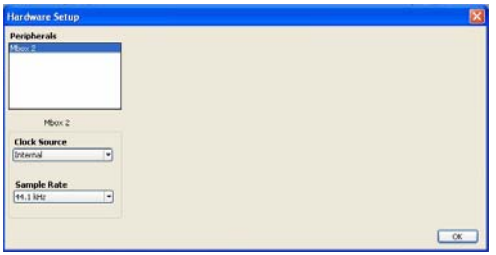
Default Sample Rate

The Sample Rate setting appears as the default sample rate when you create a new session. (This setting is available in the Hardware Setup dialog only when no session is open.)

You can change the sample rate when creating a new Pro Tools session by selecting a different sample rate in the New Session dialog. (Refer to the Pro Tools Reference Guide for details.)

To change the default Sample Rate:

1 Choose Setup > Hardware.



Hardware Setup dialog for Mbox 2

2 Select the sample rate from the Sample Rate pop-up menu.

3 Click OK.

Clock Source

The Pro Tools Hardware Setup dialog lets you select the Clock Source for the system.

Internal Use this setting if you are recording analog signals directly into Mbox 2 analog inputs 1–2 and/or are recording digital inputs into Mbox 2 inputs 3–4 where the digital device is synchronized to the Mbox 2 digital output.

S/PDIF Use this setting if you are recording through the Mbox 2 S/PDIF inputs from an external digital device. This setting will synchronize Pro Tools to that digital device.

To select the Clock Source:

1 Choose Setup > Hardware.

2 Choose the clock source from the Clock Source pop-up menu.

3 Click OK.

Your digital input device must be connected and powered on for Pro Tools to synchronize to it. If your input device is not powered on, leave the Clock Source set to Internal.

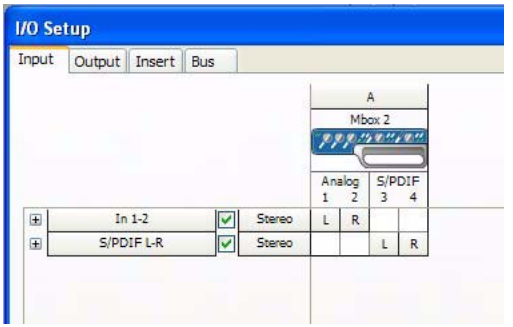
Configuring I/O Setup

Using the I/O Setup dialog, you can label Pro Tools LE input, output, insert, and bus *signal paths*. The I/O Setup dialog provides a graphical representation of the inputs, outputs, and signal routing of the Mbox 2.

Pro Tools LE has default I/O Setup settings that will get you started. Use the I/O Setup dialog only if you want to rename the default I/O paths.

To rename I/O paths in I/O Setup:

1 Choose Setup > I/O.



I/O Setup dialog for Mbox 2

2 Click the Input, Output, Insert, or Bus tab to display the corresponding connections.

3 To change the name of a path or subpath, double-click directly on the Path Name, type a new name for the path, and press Enter.

4 Click OK.

See the Pro Tools Reference Guide (or choose Help > Pro Tools Reference Guide) for more information on renaming I/O paths.

MIDI Studio Setup

(Optional)

If you plan to use any MIDI devices with Pro Tools, configure your MIDI setup with MIDI Studio Setup. See Appendix A, "Configuring MIDI Studio Setup (Windows Only)" for details.

Backing Up your System Configuration

After configuring your system and Pro Tools, you should save an image of your system drive using a backup utility such as Norton Ghost. By doing this, you can quickly restore your system configuration and settings if you encounter any problems.

Additional Software on the Pro Tools Installer Disc

The Pro Tools Installer disc provides additional software for your system, including audio drivers (for playing other audio applications through your Digidesign hardware) and a Pro Tools demo session.

Refer to your Pro Tools Installer disc for additional software and installers.

Windows Audio Drivers

The Digidesign ASIO Driver and WaveDriver Windows System Audio Driver let you use your Digidesign Mbox 2 hardware interface with third-party applications that support the ASIO Driver or WaveDriver MME (Multimedia Extension).

The Digidesign ASIO Driver and WaveDriver for Mbox 2 are automatically installed when you install Pro Tools.

Digidesign ASIO Driver

The Digidesign ASIO (Audio Sound Input Output) Driver is a single-client multichannel sound driver that allows third-party audio programs that support the ASIO standard to record and play back through Digidesign hardware.

For detailed information on configuring the Digidesign ASIO Driver, see the Windows Audio Drivers Guide.

Digidesign WaveDriver

The Digidesign WaveDriver Windows System Audio Driver is a single-client, stereo sound driver that allows third-party audio programs that support the WaveDriver MME (Multimedia Extension) standard to play back through Digidesign hardware.

For detailed information on configuring the Digidesign WaveDriver, see the Windows Audio Drivers Guide.

Standalone Digidesign ASIO Driver

Digidesign Windows Audio Drivers can be installed on Windows systems that do not have Pro Tools software installed. Use the standalone version of the Digidesign Windows Audio Drivers installer (Digidesign Audio Drivers Setup.exe), which is available on the Pro Tools Installer disc.

For information on installing and configuring the standalone version of the Digidesign Windows Audio Drivers, see the Windows Audio Drivers Guide.

Pro Tools Demo Session

The Pro Tools LE Installer disc includes a demo session that you can use to verify that your system is working.

Before installing the demo session to your audio drive, make sure the drive is configured as described in "Formatting an Audio Drive" on page 64.

To install the demo session:

1 Insert the Pro Tools LE Installer disc into your CD/DVD drive.

2 From your CD/DVD drive, locate and open the Additional Files/Pro Tools LE Demo Session Installer folder.

3 Double-click Setup.exe.

4 Select your audio drive as the install location and click Install.

5 When installation is complete, click OK.

Removing Pro Tools LE

If you need to remove Pro Tools LE software from your computer, you can use the Add or Remove Programs command.

To remove Pro Tools from your computer:

1 Choose Start > Control Panel.

2 Double-click Add or Remove Programs.

3 From the Currently Installed Programs list, select Digidesign Pro Tools LE.

4 Click the Change/Remove button.

5 Follow the on-screen instructions to remove Pro Tools LE.

chapter 4

Mac Configuration

This chapter contains information for Mac systems only. If you are installing Pro Tools on a Windows computer, see Chapter 3, "Windows Configuration."

⚠ *Before installing this version of Pro Tools, refer to the Read Me information included on the Pro Tools Installer disc.*

Installation Overview

Installation of the Mbox 2 on a Mac includes the following steps:

1 "Mac System Optimization" on page 21.

2 "Installing Pro Tools LE" on page 23.

3 "Connecting Mbox 2 to the Computer" on page 23.

4 "Launching Pro Tools LE" on page 24.

5 "Configuring Pro Tools LE" on page 25.

6 Making audio connections to the Mbox 2. (See Chapter 6, "Making Hardware Connections" for details.)

Mac System Optimization

To ensure optimum performance with Pro Tools, configure your computer before installing Pro Tools hardware and software.

Before configuring your computer, make sure you are logged in as an Administrator for the account where you want to install Pro Tools. For details on Administrator privileges in Mac OS X, refer to your Apple OS X documentation.

⚠ *Do not use the Mac OS X automatic Software Update feature, as it may upgrade your system to a version of Mac OS that has not yet been qualified for Pro Tools. For details on qualified versions of Mac OS, refer to the latest compatibility information on the Digidesign website (www.digidesign.com).*

Turning Off Software Update

To turn off the Software Update feature:

1 Choose System Preferences from the Apple menu and click Software Update.

2 Click Update Software and deselect Check for Updates.

Turning Off Energy Saver

To turn off the Energy Saver feature:

1 Choose System Preferences from the Apple menu and click Energy Saver.

2 Click Sleep and do the following:

- Set the computer sleep setting to Never.
- Set the display sleep setting to Never.
- Deselect "Put the hard disk(s) to sleep when possible" option.

Setting Processor Performance

(Mac G5 Computers Only)

To set the Processor Performance:

1 Choose System Preferences from the Apple menu and click Energy Saver.

2 Click Options and set Processor Performance to Highest.

Disabling Spotlight Indexing

The Mac OS X Spotlight feature indexes files and folders in the background, affecting system performance. It is recommended that you disable Spotlight indexing before using Pro Tools.

To disable Spotlight indexing:

1 Choose System Preferences from the Apple menu and click Spotlight.

2 In the Spotlight window, click Privacy.

3 To prevent indexing of a drive, drag its icon from the desktop into the list.

Disabling the Spotlight Shortcuts

The Mac OS X Spotlight feature uses the same key commands Pro Tools uses to start recording (Command+Spacebar), and to record online (Command+Option+Spacebar). If you want to retain use of these key commands in Pro Tools, these shortcuts must be disabled.

To disable the Spotlight keyboard shortcut:

1 Choose System Preferences from the Apple menu and click Spotlight.

2 Deselect "Spotlight menu keyboard shortcut" and "Spotlight window keyboard shortcut."

Disabling the Dashboard Shortcut

The Mac OS X Dashboard feature uses the same key command Pro Tools uses to start recording (F12). If you want to retain use of this key command in Pro Tools, this shortcut must be disabled.

To disable the Dashboard keyboard shortcut:

1 Choose System Preferences from the Apple menu and click Dashboard and Exposé.

2 Set the Dashboard keyboard shortcut to "–" to disable the shortcut.

Enabling Journaling for Audio Drives

If you plan to use an audio drive that you used with a previous version of Pro Tools on the Mac, enable journaling.

To enable journaling:

1 Launch the Disk Utility application, located in Applications/Utilities.

2 Select the volume in the left column of the Disk Utility window.

3 Click Enable Journaling in the toolbar.

Installing Pro Tools LE

After the Apple System software settings are configured, you are ready to install Pro Tools LE.

To install Pro Tools LE on Mac OS X:

1 Make sure you are logged in as an Administrator for the account where you want to install Pro Tools. For details on Administrator privileges in Mac OS X, refer to your Apple Mac OS X documentation.

2 Insert the Pro Tools LE Installer disc in your CD/DVD drive.

3 On the Installer disc, locate and double-click "Install Pro Tools."

4 Follow the on-screen instructions to continue and accept installation.

5 Select the install location. For maximum reliability, install Pro Tools on your startup drive.

6 Click Continue.

7 Select the Pro Tools application for installation.

8 You can also select from a list of optional items to install along with Pro Tools:

DigiTranslator DigiTranslator™ is a software option for Pro Tools that lets you convert and exchange OMF and AAF sequences and MXF files directly in the Pro Tools application. This option is purchased separately.

MIDI I/O Driver The MIDI I/O Driver is required if you are using the Digidesign MIDI I/O.

MP3 Export Option The MP3 Export Option lets you export MP3 files from Pro Tools. This option is purchased separately.

9 Click Install.

10 If prompted, enter your Administrator password and click OK to authenticate the installation.

11 Follow the remaining on-screen instructions.

12 When installation is complete, click Restart.

The Pro Tools Installer disc includes additional software for your system. For more information, see "Additional Software on the Pro Tools Installer Disc" on page 24.

Connecting Mbox 2 to the Computer

Before launching Pro Tools LE software, connect Mbox 2 to your computer.

To connect Mbox 2 to your computer:

1 Connect the small end of the included USB cable to the USB port on Mbox 2.

2 With your computer on, connect the other end of the USB cable to any available USB port on your computer.

If the USB LED on the front panel of the Mbox 2 does not illuminate after installation, try unplugging the USB cable from the Mbox 2 USB port, and plugging it back in. If the USB LED still does not illuminate, shut down the computer, disconnect Mbox 2 and start the computer. Once the computer has fully restarted, reconnect Mbox 2.

Mbox 2 may not function properly if connected to a USB hub. If you need to use a hub for other USB peripherals, connect the hub to a separate USB port; Mbox 2 must be connected to a dedicated port on the computer in order to function properly.

Launching Pro Tools LE

When launching Pro Tools LE the first time, you are prompted to enter an authorization code to validate your software.

To authorize Pro Tools LE software:

1 Click the Pro Tools LE icon in the Dock (or double-click the application icon in the Pro Tools folder inside the Digidesign folder).

2 Enter the authorization code in the dialog when prompted (making sure to type it exactly as printed, and observing any spaces and capitalization), then click Validate.

Your authorization code is located on the inside front cover of this guide.

Additional Software on the Pro Tools Installer Disc

The Pro Tools Installer disc provides additional software for your system, including audio drivers (for playing other audio applications through your Digidesign hardware) and a Pro Tools demo session.

Check your Pro Tools Installer disc for additional software and installers.

Mbox 2 CoreAudio Driver

The Mbox 2 CoreAudio Driver is a multi-client, multichannel sound driver that allows CoreAudio compatible applications to record and play back through Digidesign hardware.

The Mbox 2 CoreAudio Driver is installed by default when you install Pro Tools.

For information on configuring the Mbox 2 CoreAudio Driver, see the CoreAudio Drivers Guide.

Standalone Mbox 2 CoreAudio Driver

The Mbox 2 CoreAudio Driver can be installed as a standalone driver on Mac systems that do not have Pro Tools software installed. The standalone version of this driver is available on the Pro Tools Installer disc (in the Additional Files Folder).

For information on installing and configuring the standalone version of the Mbox 2 CoreAudio Driver, see the CoreAudio Drivers Guide.

Pro Tools Demo Session

The Pro Tools Installer disc includes a separate demo session installer. You can use this session to verify that your system is working.

To install the demo session:

1 Insert the Pro Tools LE Installer disc in your CD/DVD drive. Locate and double-click the demo session installer icon.

2 Select your audio drive as the install location and click Install.

3 When installation is complete, click Quit.

Configuring Pro Tools LE

Pro Tools System Settings

Pro Tools LE lets you adjust the performance of your system by changing *system settings* that affect its capacity for processing, playback, and recording.

In most cases, the default settings for your system provide optimum performance, but you may want to adjust them to accommodate large or processing-intensive Pro Tools sessions.

Hardware Buffer Size

The Hardware Buffer Size (H/W Buffer Size) controls the size of the buffer used to handle host processing tasks such as Real-Time AudioSuite (RTAS) plug-ins. The H/W Buffer setting can also be used to manage monitoring latency.

- Lower Hardware Buffer Size settings reduce monitoring latency, and are useful when you are recording live input.
- Higher Hardware Buffer Size settings allow for more audio processing and effects, and are useful when you are mixing and using more RTAS plug-ins.

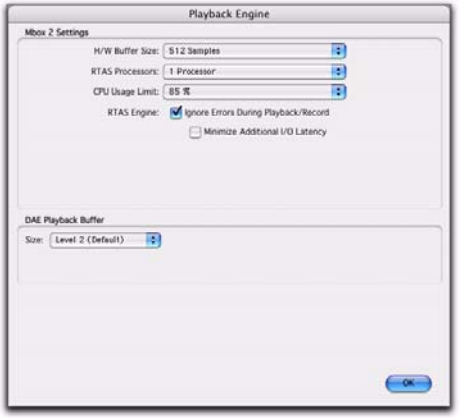
⚠ *In addition to causing slower screen response and monitoring latency, higher Hardware Buffer Size settings can increase the latency caused by RTAS plug-ins, and affect the accuracy of plug-in automation, mute data, and MIDI track timing.*

To change the Hardware Buffer Size:

1 Choose Setup > Playback Engine.

2 From the H/W Buffer Size pop-up menu, select the audio buffer size, in samples.

3 Click OK.



Playback Engine dialog for Mbox 2

RTAS Processors

The RTAS Processors setting determines the number of processors in your computer allocated for RTAS plug-in processing.

With computers that have multiple processors, or that feature multi-core processing or hyper-threading, this setting lets you enable multi-processor support for RTAS processes. Used in combination with the CPU Usage Limit setting, the RTAS Processors setting lets you control the way RTAS processing and other Pro Tools tasks are carried out by the system.

- A higher number of processors reserves more CPU processing capacity for RTAS plug-in processing. This is useful for sessions with large number of RTAS plug-ins.
- A lower number of processors leaves more CPU processing capacity for automation, screen redraws, and video playback in Pro Tools, or for other application running at the same time as Pro Tools.

To set the number of RTAS Processors:

1 Choose Setup > Playback Engine.

2 From the RTAS Processors pop-up menu, select the number of available processors you want to allocate for RTAS plug-in processing.

3 Click OK.

CPU Usage Limit

The CPU Usage Limit controls the percentage of CPU resources allocated to Pro Tools host processing tasks. Used in combination with the RTAS Processors setting, the CPU Usage Limit setting lets you control the way Pro Tools tasks are carried out by the system.

◆ Lower CPU Usage Limit settings limit the effect of Pro Tools processing on other CPU-intensive tasks, such as screen redraws, and are useful when you are experiencing slow system response, or when running other applications at the same time as Pro Tools.

◆ Higher CPU Usage Limit settings allocate more processing power to Pro Tools, and are useful for playing back large sessions or using more real-time plug-ins.

The maximum available CPU Usage Limit depends on the number of processors in your computer and on the number of processors you specify for RTAS processing. This value can range from 85 percent for single-processor computers to 99 percent for multi-processor computers.

⚠ *Increasing the CPU Usage Limit may slow down screen response on slower computers.*

To change the CPU Usage Limit:

1 Choose Setup > Playback Engine.

2 From the CPU Usage Limit pop-up menu, select the percentage of CPU processing you want to allocate to Pro Tools.

3 Click OK.

RTAS Engine (RTAS Error Suppression)

The RTAS Engine options determine RTAS error reporting during playback and recording. This is especially useful when working with instrument plug-ins.

You should only enable RTAS error suppression if you are experiencing frequent RTAS errors that are interrupting your creative workflow. When RTAS error suppression is enabled, you can experience a degradation of audio quality. However, this may be acceptable in order to avoid interrupting playback and recording when working with instrument plug-ins. Be sure to disable RTAS error suppression when you need to ensure the highest possible audio quality, such as for a final mix.

There are two RTAS Engine options:

Ignore Errors During Playback/Record When enabled, Pro Tools continues to play and record even if the RTAS processing requirements exceed the selected CPU Usage Limit. This can result in pops and clicks in the audio, but does not stop the transport.

Minimize Additional I/O Latency When enabled, any additional latency due to suppressing RTAS errors during playback and record is minimized to 128 samples. Suppressing RTAS errors requires at least 128 samples of additional buffering on some systems. If this option is disabled, the buffer is half the H/W Buffer Size, or at least

128 samples (which ever is greater). If you are on an older, slower computer, you may not want to enable this option since doing so can adversely affect performance.

The Minimize Additional I/O Latency option is only available if the Ignore Errors During Playback/Record option is enabled.

To enable RTAS error suppression:

1 Choose Setup > Playback Engine.

2 Select Ignore Errors During Playback/Record.

3 If available, you can also select Minimize Additional I/O Latency.

4 Click OK.

DAE Playback Buffer Size

The DAE Playback Buffer Size determines the amount of memory DAE allocates for disk buffers. The optimum DAE Playback Buffer Size for most disk operations is Level 2.

◆ DAE Playback Buffer Size settings lower than Level 2 may improve playback and recording initiation speed, but may make it difficult to play or record tracks reliably with sessions containing a large number of tracks or a high density of edits, or with systems that have slower or heavily fragmented hard drives.

◆ DAE Playback Buffer Size settings higher than Level 2 will allow for a higher density of edits in a session or a higher track count when using slower hard drives. However, a higher setting can also cause a time lag to occur when starting playback or recording, or longer audible time lag while editing during playback.

Using a larger DAE Playback Buffer Size leaves less system memory for other tasks. The default setting of Level 2 is recommended unless you are encountering -9073 ("Disk too slow or fragmented") errors.

To change the DAE Playback Buffer Size:

1 Choose Setup > Playback Engine.

2 From the DAE Playback Buffer pop-up menu, select a buffer size.

3 Click OK.

Pro Tools Hardware Settings

Pro Tools lets you set the default sample rate and clock source for your system.

Default Sample Rate

The Sample Rate setting appears as the default sample rate when you create a new session. (This setting is available in the Hardware Setup dialog only when no session is open.)

You can change the sample rate when creating a new Pro Tools session by selecting a different sample rate in the New Session dialog. (See the Pro Tools Reference Guide for more information.)

To change the default Sample Rate:

1 Make sure that no Pro Tools session is open.

2 Choose Setup > Hardware.

Hardware Setup dialog for Mbox 2

3 Select the sample rate from the Sample Rate popup menu.

4 Click OK.

Clock Source

The Pro Tools Hardware Setup dialog lets you select the Clock Source for the system.

Internal Use this setting if you are recording analog signals directly into Mbox 2 analog inputs 1–2 and/or are recording digital inputs into Mbox 2 inputs 3–4 where the digital device is synchronized to the Mbox 2 digital output.

S/PDIF Use this setting if you are recording material into Mbox 2 S/PDIF inputs from an external digital device. This setting will synchronize Pro Tools to that digital device.

To select the clock source:

1 Choose Setup > Hardware.

2 Choose the clock source from the Clock Source pop-up menu.

3 Click OK.

⚠ *Your digital input device must be connected and powered on for Pro Tools to synchronize to it. If your input device is not powered on, leave the Clock Source set to Internal.*

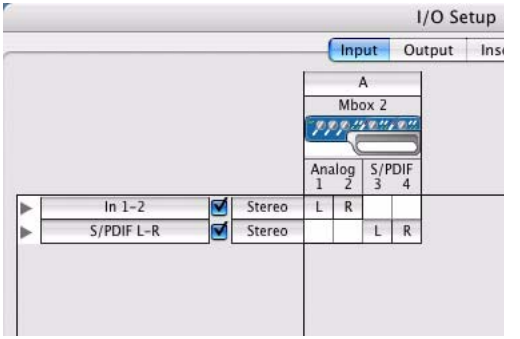
Configuring I/O Setup

Using the I/O Setup dialog, you can label Pro Tools LE input, output, insert, and bus *signal paths*. The I/O Setup dialog provides a graphical representation of the inputs, outputs, and signal routing of the Mbox 2.

Pro Tools LE has default I/O Setup settings that will get you started. Use the I/O Setup dialog only if you want to rename the default I/O paths.

To rename I/O paths in I/O Setup:

1 Choose Setup > I/O.



I/O Setup dialog for Mbox 2

2 Click the Input, Output, Insert, or Bus tab to display the corresponding connections.

3 To change the name of a path or subpath, double-click directly on the Path Name, type a new name for the path, and press Return.

4 Click OK.

See the Pro Tools Reference Guide (or choose Help > Pro Tools Reference Guide) for more information on renaming I/O paths.

Audio MIDI Setup (AMS)

(Optional)

If you plan to use any MIDI devices with Pro Tools LE, configure your MIDI setup with the Apple Audio MIDI Setup (AMS) utility. See Appendix B, "Configuring AMS (Mac OS X Only)" for details.

Backing Up your System Configuration

After configuring your system and Pro Tools, you should save an image of your system drive using a backup utility such as Bombich Carbon Copy Cloner. By doing this, you can quickly restore your system configuration and settings if you encounter any problems.

Removing Pro Tools

If you need to remove Pro Tools software from your computer, use the Uninstaller application.

To remove Pro Tools from your computer:

1 Make sure you are logged in as an Administrator for the account where Pro Tools is installed.

For details on Administrator privileges in Mac OS X, refer to your Apple OS X documentation.

2 Go to Applications/Digidesign/Pro Tools/Pro Tools Utilities and double-click the "Uninstall Pro Tools" file.

3 Click Continue to proceed with the uninstall.

4 Choose the type of uninstall you want to perform:

Safe Uninstall Leaves certain plug-ins and system files needed for compatibility with some Avid products.

Clean Uninstall Removes all Pro Tools files, including system files, Digidesign plug-ins, and MIDI patch names.

5 Click Uninstall.

6 Enter your Administrator password and click OK.

7 Click Finish to close the Installer window.

chapter 5

Mbox 2 Hardware Overview

Mbox 2 Front Panel Features

The Mbox 2 front panel has the following features:

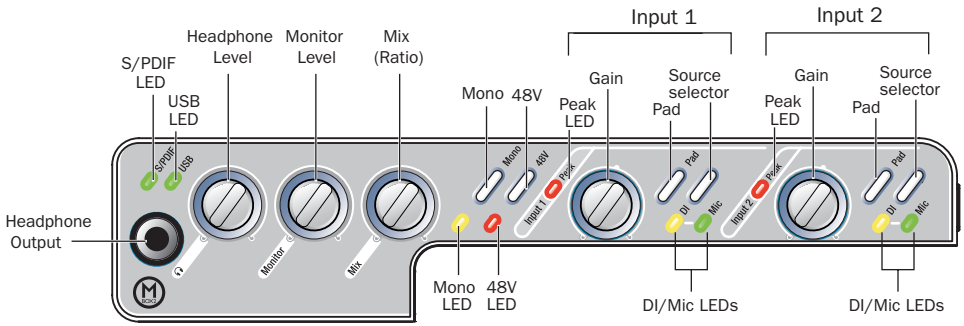


Figure 1. Mbox 2 front panel

S/PDIF LED

This LED indicates that Mbox 2 is using the S/PDIF inputs as the clock source. See “S/PDIF Digital I/O” on page 34.

USB LED

The USB LED indicates that the Mbox 2 has received power from its USB connection. Once the USB light is on, audio can pass in or out of the system.

Front Panel Headphone Output

Use the Headphone Output to connect stereo headphones with a 1/4-inch stereo connector.

Headphone Level

The headphone knob adjusts the output level of the Headphone port, which outputs the signal that is routed to Outputs 1–2 in Pro Tools LE, and mirrors the Line Outputs.

Monitor Level

The Monitor knob adjusts the output level of the Line Out ports. In Pro Tools, this will be the signal routed to Outputs 1–2.

Mix (Ratio) Control

Mbox 2 gives you the ability to monitor your analog input signals while recording, without the delay incurred by A/D/A converters and host-based processing.

This zero-latency analog monitoring is controlled with the Mix knob, which you can use to blend and adjust the monitor ratio between Mbox 2 analog inputs and Pro Tools playback. The Mix knob has no effect when you are using S/PDIF digital inputs, since it controls the signal before it reaches the A/D converters.

To listen to just the Source input signal, turn the Mix knob fully left to Input. To listen to Pro Tools output only, turn the knob fully right to Playback.

The output from the Mix control is routed directly to the TRS line outputs, and is mirrored in the Headphone ports and S/PDIF output ports.

This ability to blend and control the relative levels of Pro Tools playback and latency-free live analog inputs can be particularly effective when overdubbing.

Mono Switch and LED

The Mono switch sums the input channels to a mono signal (delivering that identical signal to both speakers). This has no effect on Pro Tools playback monitoring, recording, or on the main outputs. Switching your stereo source signal to mono is useful when you are recording a mono input while listening to stereo playback (to hear your playing in both sides), or for checking the phase relationship of stereo inputs. When engaged, the Mono LED lights.

Monitoring while Overdubbing

By panning signals to the center or using the Mono switch, as opposed to panning them hard left and right in the Headphone outputs, you can create a more focused monitor mix to help minimize distractions while overdubbing.

In situations where you are monitoring stereo microphones, stereo synthesizers, or any source pairs with a comfortable balance, you will probably not want to use the Mono switch.

Checking Phase Relationships

The Mono switch can also be used for a quick check of the phase relationship between Source 1 and Source 2 inputs.

When the two input signals are out of phase, pressing the Mono switch will result in a sudden "hollow" sound that is the result of phase cancellation. This quick test with the Mono switch can help to avoid phase problems later when mixing these tracks. Frequent checking of phase relationships with the Mono switch can also assist you in finding the optimal microphone placement.

48V Switch and LED

Phantom power is activated by the switch labeled 48V on the front panel of Mbox 2. The LED, when lit, indicates that 48V phantom power is active on the Mic/Line inputs. These inputs provide phantom power for microphones that require it to operate.

About Phantom Power

Dynamic microphones (such as a Shure SM57) do not require phantom power to operate, but are not harmed by it. Most *condenser* microphones (like an AKG C3000) *do* require phantom power to operate.

⚠ *Although phantom power can be used safely with most microphones, it is possible to damage some ribbon microphones with it. Always turn off phantom power and wait at least ten seconds before connecting or disconnecting a ribbon microphone.*

⚠ *When using phantom power, Mbox 2's maximum current per microphone is 4 mA.*

If you are not sure about the phantom power requirements for your microphone, consult your microphone's documentation or contact the manufacturer.

Peak LEDs

These LEDs are clip indicators. If the Peak LEDs flicker occasionally, the signal reaching Mbox 2 has clipped.

Gain Controls

These knobs adjust the input gain levels of the Mic/Line inputs.

Pad Switches and LEDs

The Pad switches engage a –20 dB pad on their corresponding input channels. When engaged, the Pad LEDs light.

Source Selectors and LEDs

These switches select either the Mic or DI inputs for each channel. The DI and Mic LEDs indicate the current source input.

Removable Handle

Mbox 2 includes a handle that can be used for carrying and tilting, as well as a replacement panel that makes the unit more compact.

- The handle can be used as a stand that tilts the unit into a more easily viewable angle when the Mbox 2 is placed on a desktop. The handle can also be used to carry the unit.
- The handle can also be replaced with the optional Mbox 2 faceplate panel. This panel lets Mbox 2 sit flat on a desktop, and reduces the space required when packed for traveling.

To replace the handle with the Mbox 2 panel:

1 Unscrew the handle mounting screw located along the right edge of the handle (when viewing from the front).

2 Remove the handle.

3 Mount the replacement panel in position where the handle had been.

4 Secure the panel to the unit in its new position using the same screw you removed in step 1.

5 Repeat the above basic instructions to replace the panel with the handle.

Mbox 2 Back Panel Features

Figure 2 identifies each port on the Mbox 2 back panel.

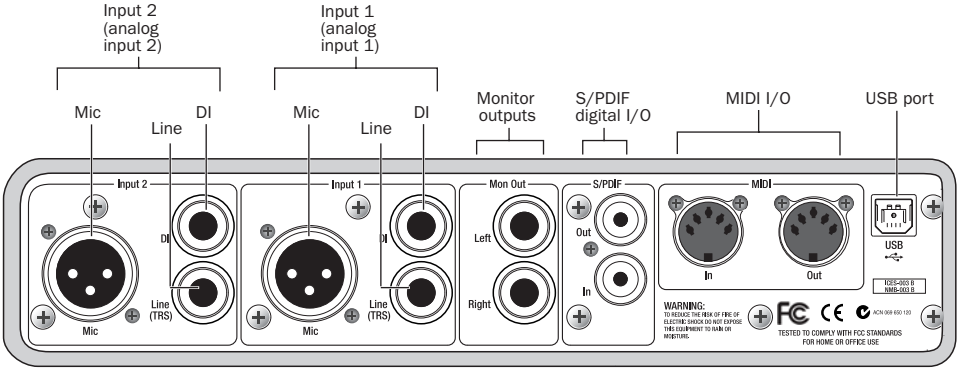


Figure 2. Mbox 2 back panel

The Mbox 2 back panel has the following features:

USB Port

This standard USB v1.1 connector is used to connect your computer to the Mbox 2. One standard USB cable is included with your system.

The Mbox 2 is compatible with USB 2.0 ports. However, the USB 2.0 bus will switch to the slower USB v.1.1 speed to accommodate Mbox 2.

MIDI I/O

The MIDI In and MIDI Out ports are standard 5-pin MIDI ports, each providing 16 channels of MIDI input and output.

S/PDIF Digital I/O

The S/PDIF in and out ports are unbalanced two-conductor phono (RCA) connectors that utilize a full 24-bit, two-channel digital data stream.

The Sony/Philips Digital Interface Format (S/PDIF) is used in many professional and consumer CD recorders and DAT recorders. To avoid RF interference, use 75-ohm coaxial cable for S/PDIF transfers and keep the cable length to a maximum of 10 meters.

In use, the S/PDIF input channels are available in addition to the two channels of analog audio input. This lets Mbox 2 be used as a 4-in/2-out digital audio interface for Pro Tools LE.

The S/PDIF output channels always mirror the main outs 1–2.

Mon Out (Monitor Output)

These outputs support balanced TRS, or unbalanced TS, 1/4-inch connections. To monitor your mix, these outputs can be connected to a mixing board, directly to a monitoring system such as a stereo power amp, or another stereo destination.

The Mon Out Left and Right play the audio that is routed to analog outputs 1 and 2 from within Pro Tools, respectively. These analog outputs feature 24-bit digital-to-analog converters.

Input 1 and Input 2

Each analog source input channel (Input 1 and Input 2) provides Mic, DI ("Direct Inject"), and Line (TRS) ports. These balanced/unbalanced analog audio inputs support a broad range of input levels, as follows:

- Mic (microphone) for XLR inputs
- Line (TRS) for line level signals on TRS or TS inputs
- DI for other 1/4-inch TRS or TS connections

On the front panel, the input signal is adjusted by the Gain control for each channel and the source (Mic/Line, or DI) is chosen using the Source selectors.

Source 2 is at the far left (when looking at the back panel), and Source 1 is to its right. The back panel inputs for Source 1 and Source 2 are located such that they are directly in line with their associated input controls on the front panel. This lets you locate input jacks more easily when viewing from the front of the unit.

Though the XLR connectors support instrument and microphone level inputs, whenever a TRS cable is plugged in to the Line(TRS) port, the XLR port on that channel is ignored.

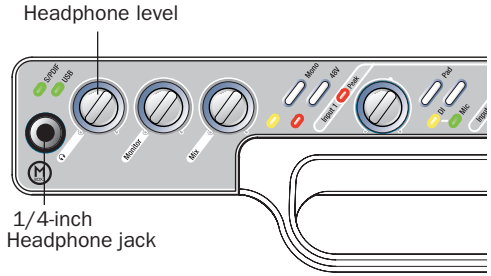
chapter 6

Making Hardware Connections

To hear audio recorded into a Pro Tools session, you will need to connect headphones or an external sound system (such as powered monitors or a home stereo) to Mbox 2. Sound from Mbox 2 cannot be played through your computer's speakers or your computer's sound output.

Connecting Headphones

On the front panel of the Mbox 2 is a 1/4-inch jack to connect headphones, and a headphone level control to adjust headphone volume.



Headphone jack on front of Mbox 2

To connect headphones:

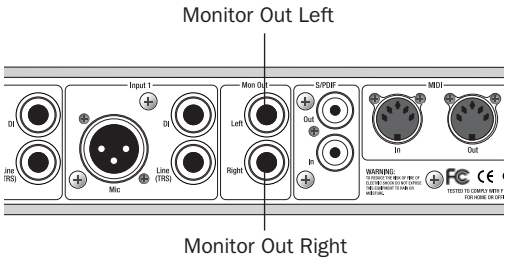
- Connect headphones with a 1/4-inch stereo connector (or adapter) to the Headphone jack.

Connecting a Sound System

The monitor outputs on the back of the Mbox 2 support 1/4-inch plugs. These connections can be balanced, TRS (Tip, Ring, Sleeve) style connectors, or unbalanced connectors. To listen to your Pro Tools session, these outputs can be connected to any amplification system: powered speakers, a home stereo system, or an audio mixer.

When connecting to a stereo system, connect the left channel (often the white plug) to Mon Out Left, and right channel (often the red plug) to Mon Out Right.

Home stereo systems often use RCA connectors. You can use an adaptor or a special cable to convert from the TRS or TS connectors used by Mbox 2 to the RCA connectors on your home stereo.



Stereo output from the Mbox 2 (back panel)

Mon Outs Left and Right play the audio that is routed to analog outputs 1 and 2 within Pro Tools.

Connecting a Recorder for Mixdowns

After you record and mix your sessions in Pro Tools, you may want to mix them down to a DAT, CD recorder, Mini-Disc, or other stereo 2-track recording device.

For more information on mixdown options, see Chapter 7, "Common Tasks with Pro Tools LE."

Connecting an Analog Deck

Connect the left and right Mon Outs on the back of the Mbox 2 to your recorder's analog inputs. Mon Outs Left and Right should be routed to the left and right inputs, respectively, on your recorder. These outputs are TRS ports. You may need adapter cables if your mixdown deck has RCA inputs.

Connecting a Digital Deck

If you have a CD recorder, DAT deck or other device that accepts S/PDIF connections, connect it to the S/PDIF In and S/PDIF Out RCA ports on the back of Mbox 2

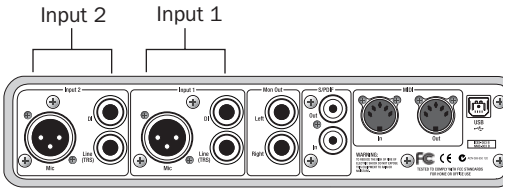
When recording from Pro Tools to a digital device, make sure the Pro Tools Clock Source setting is set to Internal clock mode.

Connecting Audio Inputs

This section describes the analog inputs available on Mbox 2. For information about connecting specific audio sources, see "Connecting a Microphone" on page 39, and "Connecting Instruments to the Mbox 2" on page 41.

Overview of Analog Inputs

Mbox 2 inputs (sources) support microphones, guitars, keyboards, and other types of instruments. Mbox 2 has two audio input sections, labeled Input 1 and Input 2. For stereo inputs, use Input 1 for the left input, and Input 2 for the right input.



Inputs on back of Mbox 2

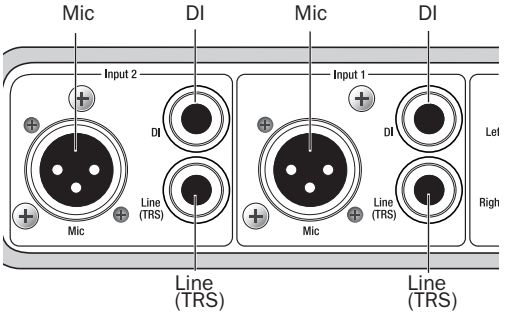
The two input sections are located so that the hardware input jacks line up directly behind their corresponding input controls on the front panel. This makes it easier to locate channel input connections from the front.

Each Input section has three analog input jacks:

Mic For XLR microphone cables.

Line (TRS) For 1/4-inch Tip-Ring-Sleeve cables from keyboards, mixers, microphones, and other line sources.

DI For 1/4-inch Tip-Sleeve cables from guitar, bass, microphones, or similar sources.



Analog input connectors

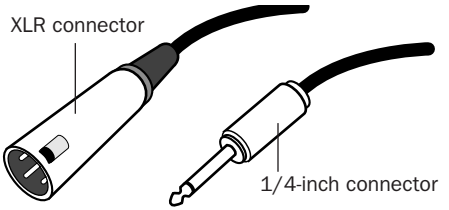
For information about connecting specific audio sources, see "Connecting a Microphone" on page 39, and "Connecting Instruments to the Mbox 2" on page 41.

Connecting a Microphone

There are several ways to use Mbox 2 with a microphone, depending on the type of microphone and cable you use.

Mic Cables and Connectors

Some microphone cables use an XLR connector to attach a microphone to an input (such as those on the Mbox 2); other microphones use a 1/4-inch connector. If you have a choice, use an XLR connector to connect the microphone to the Mbox 2 to yield better results.



XLR and 1/4-inch connectors

Phantom Power

Some microphones require power to operate. This power, called *phantom power*, is supplied either by a battery in the microphone, or through an audio interface (such as Mbox 2) that can supply power through the microphone cable.

Most *condenser* microphones (such as an AKG C3000) require phantom power to operate. *Dynamic* microphones (such as a Shure SM57) do not require phantom power to operate, but are not harmed by it.

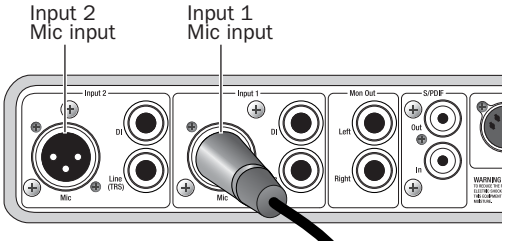
⚠ *Although phantom power can be used safely with most microphones, it is possible to damage some ribbon microphones with it. Always turn off phantom power and wait at least ten seconds before connecting a ribbon microphone.*

The Mbox 2 can only supply power through a microphone cable with XLR connectors. If you are not sure about the phantom power requirements for your microphone, refer to your microphone's documentation or contact the manufacturer.

Using a Mic that Has an XLR Connector

To use a microphone that has an XLR connector:

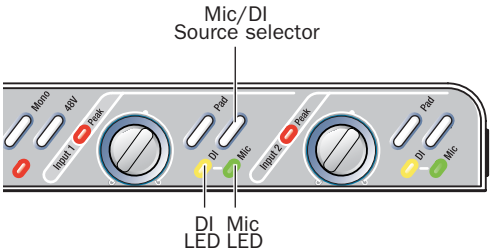
1 Plug your microphone cable into one of the Mic inputs on the back of Mbox 2.



XLR connector plugged into Input 1

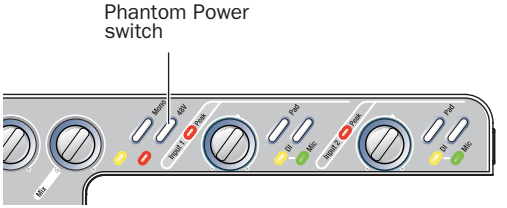
2 Make sure nothing is plugged in to the Line (TRS) jack, otherwise Mbox 2 will use audio from the Line (TRS) input and not the Mic input.

3 Set the Source to Mic (microphone) by pressing the Mic/DI Source selector on the front of Mbox 2 until the Mic LED is lit.



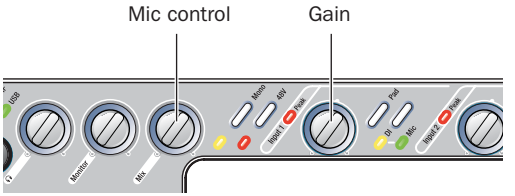
Input 1 Source selector and LEDs

4 If your microphone requires phantom power, make sure the microphone is connected, then press the Phantom Power switch (labeled *48V*) on the front of the Mbox 2. This switch sends 48V to *both* mic inputs. The 48V LED on the front of the Mbox 2 will light when phantom power is being supplied.



Phantom Power switch

5 On the front of the Mbox 2, turn the Mix control fully left to Input.



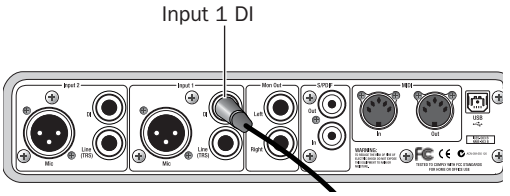
Mix control and Gain knob for Input 1

6 On the front of the Mbox 2, carefully turn the Gain control to the right to increase the input level of your microphone signal.

Using a Mic that Has a 1/4-Inch Connector

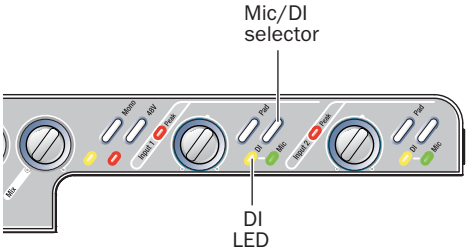
To use a microphone that has a 1/4-inch TS (Tip-Sleeve) connector:

1 On the back of the Mbox 2, plug the 1/4-inch connector from your microphone into one of the DI inputs.



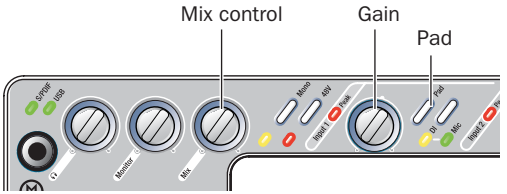
Connecting a microphone to the Input 1 DI connector

2 On the front of the Mbox 2, set the source to DI by pressing the input channel Source selector until the DI LED is lit.



Input 1 selector switch and DI LED

3 On the front of the Mbox 2, turn the Mix control fully left to Input.



Input 1 Gain and Pad controls, and the Mix control

4 On the front of the Mbox 2, carefully turn the Gain control to the right to increase the input level of your microphone signal.

5 If the incoming signal is too loud, press the Pad switch to engage the 20 dB pad.

Connecting Instruments to the Mbox 2

Mbox 2 provides two input types (DI and Line) that correspond to the different signal strengths output by different types of instruments.

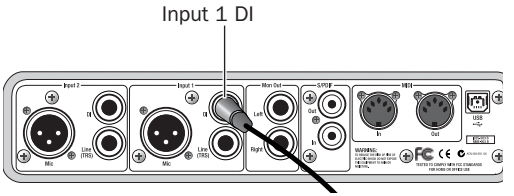
DI Input Instruments such as electric guitar or electric bass that usually have a lower level of output than line level instruments use the DI ("Direct Inject") input.

Line Input Line level devices, including electronic audio sources such as mixers, samplers, keyboards, turntables, and synthesizers use the Line input.

Connecting Electric Guitar or Bass

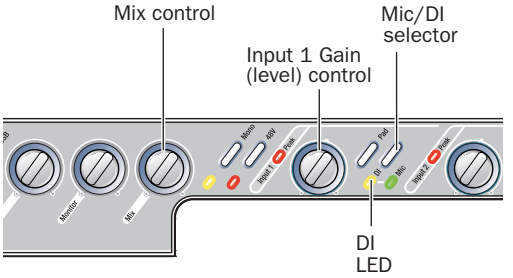
To use a guitar with Mbox 2:

1 On the back of the Mbox 2, plug your guitar cable into one of the DI inputs.



Connecting guitar to the Input 1 DI connector

2 On the front of the Mbox 2, set the Source to DI by pressing the Mic/DI switch until the DI LED is lit.



Source selector and Gain control for Input 1

3 On the front of the Mbox 2, turn the Mix control fully left to Input.

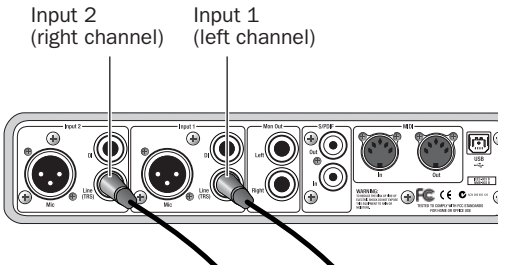
4 On the front of the Mbox 2, carefully turn the Gain control to the right to increase the input level of your guitar.

When you record a guitar (or any mono instrument that uses only one source input), you will hear the sound in only one side of the stereo field. Pushing the "mono" button on the front of the Mbox 2 brings the sound from one side of the stereo field to both sides. The Mono switch does not affect the audio being recorded. It only affects how you hear your input to the Mbox 2.

Connecting Keyboards and Mixers

To use a keyboard or mixer with Mbox 2:

1 Plug your keyboard, mixer, or other audio source into either the Input 1 or Input 2 Line (TRS) inputs on your Mbox 2. If your source is stereo (such as a stereo keyboard or the stereo output from a mixer), connect the left channel (often the white plug) to Input 1, and right channel (often the red plug) to Input 2.

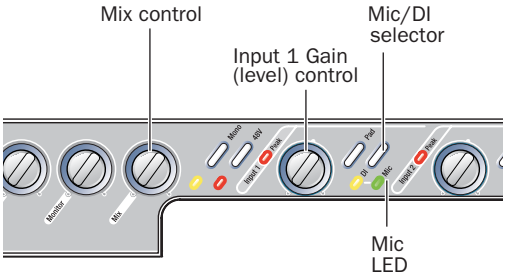


Mbox 2 connections for line-level stereo input source

If your keyboard has unbalanced outputs, use the Mbox 2's DI inputs. Refer to your keyboard's documentation

2 On the front of the Mbox 2, set the source to Line by pressing the Source selector until the Line LED is lit.

3 On the front of the Mbox 2, turn the Mix control fully left to Input.



Source selector and Gain control for Input 1

4 Set your instrument's volume to its optimal level. For example, the optimal level for most keyboards is between 80% and 100% of maximum volume.

5 On the front of the Mbox 2, carefully turn the Gain control to the right to increase the input level of your keyboard.

Digital Input and Output

Mbox 2 provides digital inputs and outputs for S/PDIF format digital audio. The two channels of S/PDIF digital input can be used in combination with the two analog inputs (for a total of four simultaneous input channels).

Connecting Digital Devices

To connect a S/PDIF device to Mbox 2:

1 Use two 75-ohm coaxial cables with male RCA connectors on both ends (purchased separately).

2 Connect the device's S/PDIF output to Mbox 2's S/PDIF input port, and the device's S/PDIF input to Mbox 2's S/PDIF output port.

To configure Mbox 2 to record from a digital source, choose Setups > Hardware Setup in Pro Tools, then select S/PDIF in the Clock Source.

Using S/PDIF Input

To configure Pro Tools to record from a S/PDIF device:

1 Choose Setups > Hardware Setup.

2 Choose S/PDIF from the Clock Source selector. On the front panel, the S/PDIF LED lights to indicate this setting.

3 Click OK.

4 On the recording track, choose the appropriate stereo or mono S/PDIF source from the track Input selector.

S/PDIF Mirroring

Pro Tools LE uses S/PDIF mirroring to automatically "mirror" the audio that is sent to Line Outputs 1 and 2 on the S/PDIF RCA outputs. This is useful, for example, if you are monitoring a mix using your Line Outputs, and also recording the same source to an external S/PDIF device.

MIDI Connections

The two MIDI ports on Mbox 2 let you take advantage of all the MIDI features of Pro Tools LE, including recording and editing MIDI tracks.

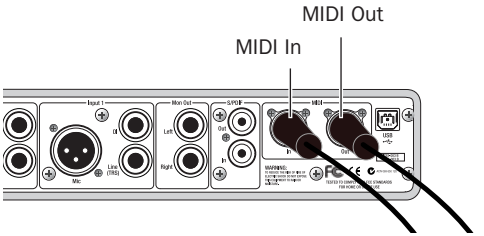
If you need additional MIDI ports you can add a compatible MIDI interface. USB MIDI interfaces work effectively with Pro Tools systems on Windows or Mac. Serial MIDI interfaces are supported on Windows systems only.

Only USB MIDI interfaces are compatible with Pro Tools systems for Mac OS X. Modem-to-serial port adapters and serial MIDI devices are not supported.

To connect your MIDI device to Mbox 2:

1 Connect a standard 5-pin MIDI cable from the MIDI Out port of your device to the MIDI In port on the back of Mbox 2.

2 Connect another MIDI cable from the MIDI In port of your device to the MIDI Out port on the back of Mbox 2.



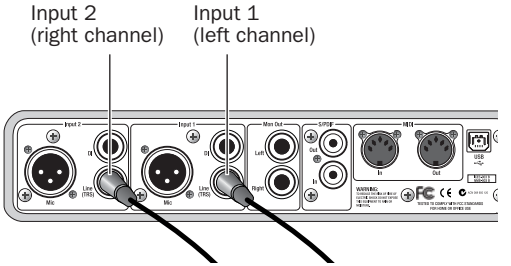
Mbox 2 MIDI connections

Monitoring MIDI Instruments with Mbox 2

If you have a MIDI instrument that has analog outputs, you can connect it to Mbox 2 to monitor its output.

To connect your MIDI instrument for monitoring in Pro Tools:

■ Connect the MIDI instrument's audio output to a Line (TRS) input on your Mbox 2.



Mbox 2 connections for line-level stereo input source

chapter 7

Common Tasks with Pro Tools LE

This chapter is designed to give new users specific methods for accomplishing common tasks with your Pro Tools system.

For the most complete information on using Pro Tools, see the Pro Tools Reference Guide.

You can view an electronic PDF version of the Reference Guide by choosing it from the Pro Tools Help menu.

This chapter uses analog inputs in its examples of common tasks. To record digitally through the Mbox 2 S/PDIF input, the steps are basically the same with the following important exception: S/PDIF must be enabled as the Pro Tools Clock Source in the Hardware Setup dialog. For more information, see "Digital Input and Output" on page 44.

Recording a Pro Tools Session

Before you record with Pro Tools LE, you first create a Pro Tools session, then prepare an audio track for recording.

To create a Pro Tools session:

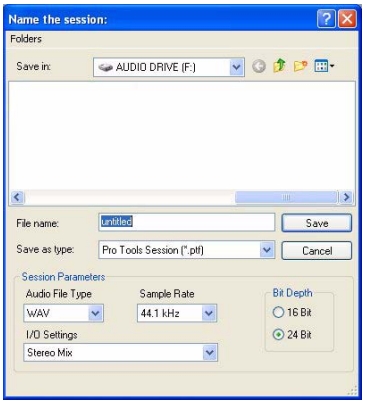
1 Verify the connections between your Mbox 2 and your instrument or microphone.

For connection information, see Chapter 6, "Making Hardware Connections."

2 Launch Pro Tools.

3 Choose File > New Session.

4 In the New Session dialog, set the session parameters as needed, or leave them at their default settings. (For details on New Session settings, see the *Pro Tools Reference Guide*.)



New Session dialog

5 Choose the audio drive where you want to save your session.

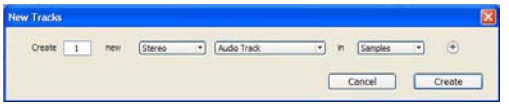
6 Type a name for your session.

7 Click Save.

To prepare an audio track for recording:

1 Choose Track > New.

2 Specify 1 Mono Audio Track in Samples, if your source is mono, or 1 Stereo Audio Track in Samples, if your source is stereo.



Creating a new Stereo Audio track

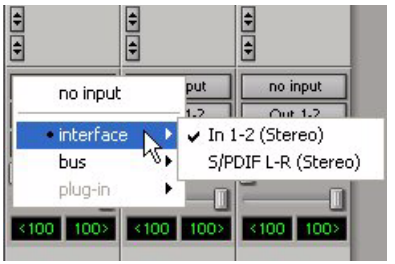
3 Click Create.

A mono instrument uses one input on the Mbox 2, and a stereo instrument uses two. Creating a stereo track in Pro Tools will not make a mono instrument into a stereo instrument. If a mono instrument is recorded on a stereo track, one of the sides of the stereo track will show no signal.

4 Make sure the Mix window is open by choosing Window > Mix.

5 In the Mix window, click the Audio Input Path selector on the new track.

6 From the pop-up menu, select the interface input you want to record. For example, select Analog 1 if your audio source is plugged into an Input 1 connector on the Mbox 2.



Routing an input to a stereo track

7 Play the instrument or sound source at the volume you will record.

8 Use the Gain controls to maximize the signal going into Pro Tools while avoiding clipping.

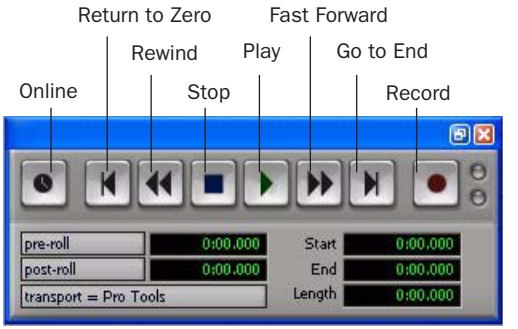
Clipping occurs when you feed a signal to an audio device that is louder than the circuitry can accept. To avoid clipping, adjust the output volume of the source device, then adjust the Mbox 2 Gain control. Adjust these two levels so that the input Peak LEDs on the front panel do not light red. (One Peak LED is provided on the front panel for each input; Peak LEDs light green when the input signal is roughly –60 dBFS, light yellow at –6 dBFS, and will turn red to indicate the input signal is at –0 dBFS (also known as "full code").

To record an audio track:

1 Click the track's Record Enable button.

Record enabling a track in the Mix window

2 Choose Window > Transport to display the Transport window. Click Return to Zero to go to the beginning of the session.



Transport window

3 Click Record in the Transport window to arm Pro Tools for recording. The Record button flashes red to indicate that Pro Tools is ready to record.

4 When you are ready to start recording, click Play or press the Spacebar.

5 Record your performance.

6 Click Stop in the Transport window or press the Spacebar when you are finished recording.

To play back a recorded track:

1 If the track's Record Enable button is lit, click on it to take it out of Record mode.

2 Click Play in the Transport window or press the Spacebar to start playback.

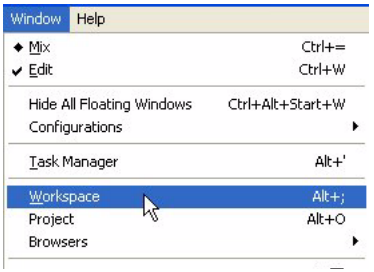
3 Click Stop in the Transport window or press the Spacebar to stop playback.

Importing Audio from a CD

To import audio from a compact disc:

1 Put the source CD into your computer's CD/DVD drive.

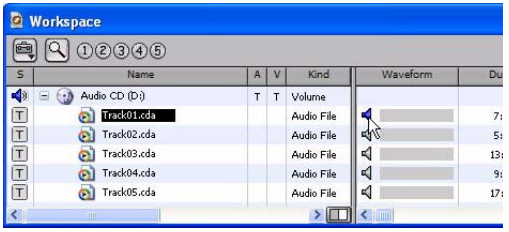
2 In Pro Tools, open the Workspace browser by choosing Window > Workspace. The Workspace browser is a window where you can find, audition, and manage your audio files.



Opening the Workspace browser

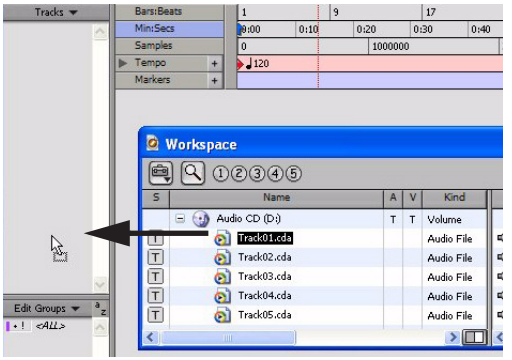
3 In the Workspace browser, click the Audio CD icon to show the files on the CD.

4 Click the speaker icon in the Waveform column to audition the audio file. Press the Spacebar to stop playback.



Auditioning an audio file in the Workspace browser

5 Drag the audio file from the Workspace browser to the Track List in the Edit window to import the file to a new audio track.



Dragging an audio file from the Workspace browser to the Edit window Track List

To play back the new track:

1 In the Transport window, click Return to Zero to go to the beginning of the track.

2 Click Play in the Transport window to begin playback.

3 Click Stop in the Transport window or press the Spacebar to stop playback.

Creating an Audio CD from a Pro Tools Session

Pro Tools does not create audio CDs directly, but you can create stereo audio files from your Pro Tools sessions that can be used by most CD burning software.

Bouncing Audio to Disk

Use the Pro Tools Bounce to Disk feature to combine all your audible tracks into a single "master" audio file. After the new audio file has been bounced to disk, you can burn it to a CD.

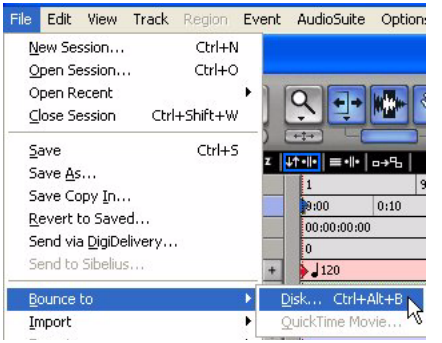
If you are bouncing to 16-bit (CD resolution), you should use a dither plug-in on the main output. (For details, see the *Pro Tools Reference Guide*.)

To bounce audio to disk:

1 After you have finished recording and mixing a session in Pro Tools, select the length of the session in the timeline ruler (or on a track), plus an additional amount of time to avoid cutting off any reverb tails that might continue past the end of the last region.

Session audio selected and ready to bounce

2 Choose File > Bounce to > Disk.



Choosing Bounce to Disk from the File menu

3 In the Bounce Options dialog, choose Analog 1–2 as the Bounce Source.

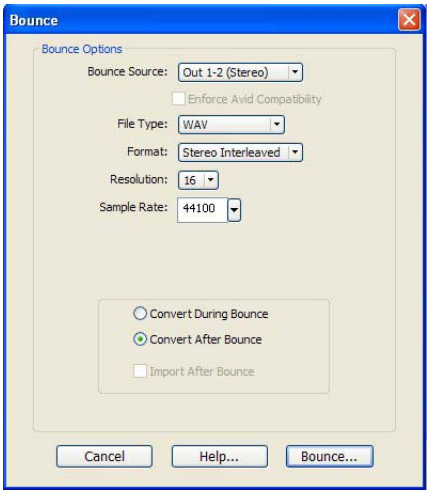
4 Choose WAV (BWF) for the File Type.

5 Choose Stereo Interleaved for the Format.

6 Choose 16 for the Resolution and 44100 for the Sample Rate.

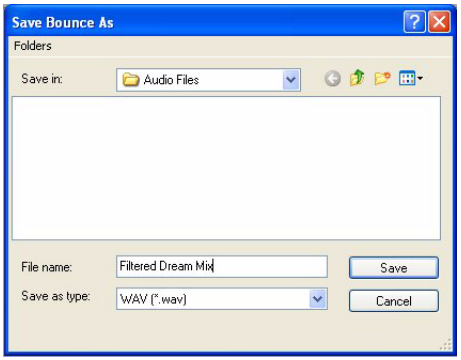
7 If you are changing the sample rate of the bounced file, choose a Conversion Quality setting. (For details, see the *Pro Tools Reference Guide*.)

8 Choose "Convert after Bounce," and click Bounce.



Bounce options for creating CD burnable tracks

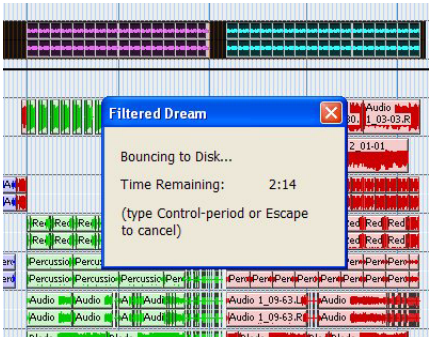
9 In the Bounce dialog, give the bounce tracks a name and choose where they should be saved.



Entering a name for the bounced file

10 Click Save.

Pro Tools begins bouncing to disk. Pro Tools bounces are done in real time, so you hear audio playback of your mix during the bounce process (though you cannot adjust it).



Bouncing to Disk dialog

Burning a CD

After the bounce is completed, you will have an audio file that is ready for burning onto a CD. Quit Pro Tools and launch any common CD burning application to burn your bounced mix to CD.

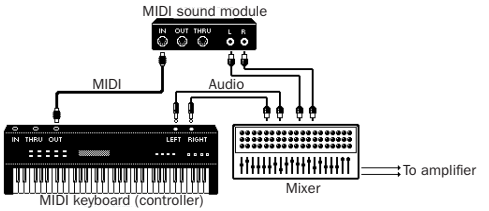
Make certain that you configure your CD burning application to create an audio CD rather than a data CD.

Recording MIDI in a Pro Tools Session

What is MIDI?

MIDI (Musical Instrument Digital Interface) data is not audio, and has no sound. MIDI is a way for musical devices to communicate. MIDI is data that can trigger a MIDI device (such as a keyboard or software synthesizer).

In order to create or play a MIDI recording, you must have a MIDI controller or sound module (real or virtual) connected to the computer through a MIDI interface. Audio from your MIDI instrument can be monitored through the audio interface or sent to an external mixer.



Signal paths for MIDI instruments

Recording MIDI on an Instrument Track

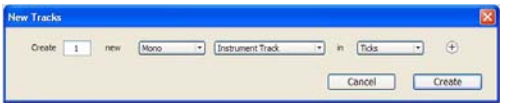
Pro Tools Instrument tracks provide both MIDI and audio capabilities, so you can record MIDI and monitor audio from software and hardware instruments.

⚠ *To record or playback tracks using MIDI data, your Pro Tools system must be configured for MIDI. See Appendix A, "Configuring MIDI Studio Setup (Windows Only)" or Appendix B, "Configuring AMS (Mac OS X Only)."*

To create an Instrument track and configure it for recording:

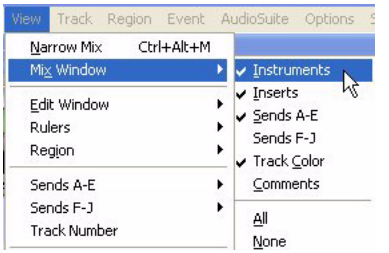
1 Choose Setup > MIDI > Input Devices and make sure your input device is selected in the MIDI Input Enable window, and click OK.

2 Choose Track > New and specify 1 Mono Instrument Track, then click Create.



Creating a new Mono Instrument track

3 Select View > Mix Window > Instruments to display the MIDI controls for the Instrument track.



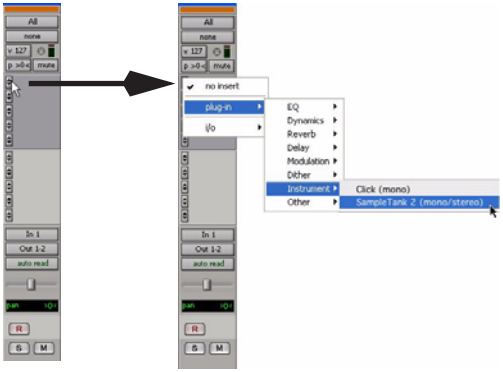
Showing the Instrument View in the Mix window

4 At the top of the Instrument track in the Mix window, click the track's MIDI Input selector and assign the device and channel to be recorded, or leave it set to All.

MIDI Input selector in an Instrument track

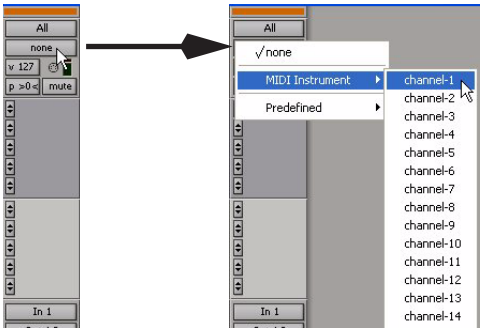
5 Do one of the following, depending on the type of instrument you are using:

- If you are using an instrument plug-in, click an Insert selector and insert the plug-in on the Instrument track. The track's MIDI output is automatically assigned to the instrument plug-in.



Inserting an instrument plug-in on an Instrument track

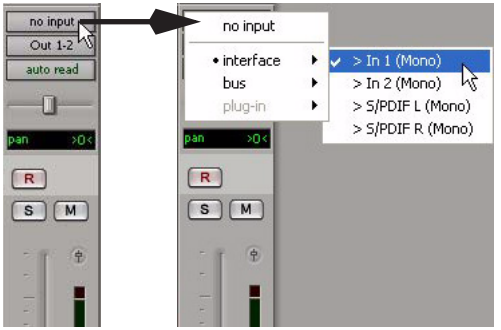
- If you are using an external MIDI device, click the track's MIDI Output selector (at the top of the Instrument track) and assign the device and channel to receive the MIDI output (the choices will vary depending on the device).



MIDI Output selector in an Instrument track

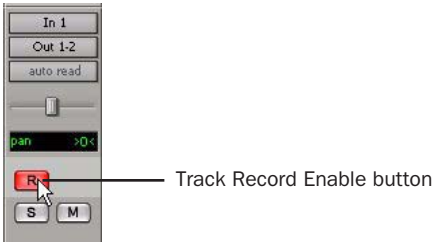
If your connected MIDI device does not appear, check that you have configured your computer and its MIDI settings. For more information, refer to Appendix A, "Configuring MIDI Studio Setup (Windows Only)" or Appendix B, "Configuring AMS (Mac OS X Only)."

6 If you are using an external MIDI device and have connected its audio output to your audio interface for monitoring in Pro Tools, click the Input selector of the Instrument track and choose the corresponding audio input. (This step is not necessary if you are using an instrument plug-in.)



Choosing an audio input for an Instrument track

7 In the Mix Window, click the track's Record Enable button to enable the Instrument track for MIDI recording.



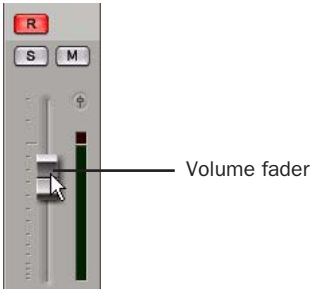
Enabling an Instrument track for MIDI recording

8 Make sure Options > MIDI Thru is selected.

9 Play some notes on your MIDI controller and look for the track's MIDI Velocity meter to move. Remember, MIDI is not audio, and the MIDI Velocity meter is not registering sound output, but MIDI activity.

MIDI meter in Instrument track showing MIDI activity

10 Adjust the audio output level of the Instrument track with its Volume fader.



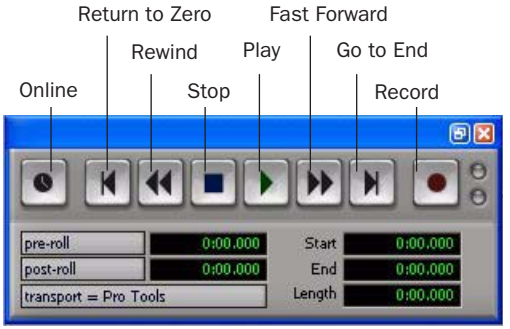
Adjusting the Volume fader on an Instrument track

To record MIDI on the Instrument track:

1 Verify that the Instrument track you want to record to is record-enabled and receiving MIDI.

2 In the Transport window, click Return to Zero to start recording from the beginning of the session. You can also record to a selection in a track or from the cursor location in the Edit window.

3 Click Record in the Transport window.

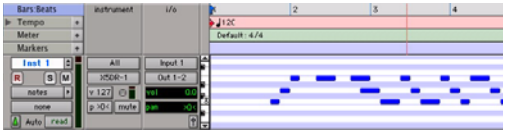


Transport window

4 Click Play in the Transport window or press the Spacebar to begin recording.

5 Play your MIDI controller or input device.

6 When you have finished recording, click Stop in the Transport window, or press the Spacebar. The newly recorded MIDI data appears as a MIDI region on the track in the Edit window, as well as in the Region List.



MIDI data in the Instrument track

To play back recorded MIDI data:

1 Click the track's Record Enable button to take the Instrument track out of Record mode.

2 In the Transport window, click Return to Zero to play back from the beginning of the track.

3 Click Play in the Transport window to begin playback. The recorded MIDI data plays back through the track's assigned instrument and channel.

appendix a

Configuring MIDI Studio Setup (Windows Only)

MIDI Studio Setup

MIDI Studio Setup (MSS) lets you configure the MIDI controllers and sound modules that are connected to your system, and control the routing of MIDI data between your MIDI equipment and Pro Tools.

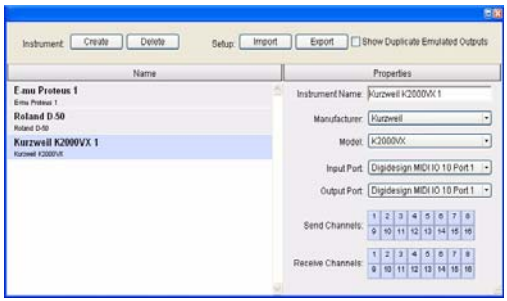
MSS automatically finds MIDI interfaces, and lets you specify a custom name for each of the MIDI ports within the MIDI Studio Setup document.

MSS also supports XML-based patch file names for storing and importing patch names for your external MIDI devices.

Entire MIDI Studio Setup configurations created within MSS can be imported and exported.

MIDI Studio Setup Window

The MIDI Studio Setup window is organized into three sections. Interface controls are at the top of the window. All the currently defined instruments are displayed in the Instrument Name list on the left side of the window. A detailed view of MIDI parameters is shown in the Properties section on the right.



MIDI Studio Setup window

Interface Controls

Create This button adds a new instrument to the Instrument Name list.

Delete This button deletes the instrument or instruments selected in the Instrument Name list.

Import This button lets you import an existing MIDI Studio Setup file.

Export This button lets you export the current MIDI Studio Setup file.

Show Duplicate Emulated Ports When this option is selected and you are using a MIDI interface that supports timestamping (such as MIDI I/O), in addition to the MIDI ports on Mbox 2, the MIDI Studio setup window shows both the DirectMusic time-stamped output ports, and non-stamped duplicate emulated output ports.

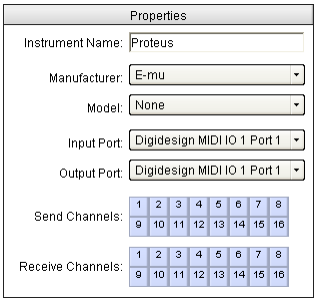
Some MIDI Interfaces will not properly load or unload their drivers unless you quit and re-launch Pro Tools. Check the documentation that came with your MIDI interface for more information.

Instrument List

The Instrument list contains all the currently defined instruments. Selecting an instrument in the list displays that instrument's properties in the Properties section of the window.

Properties Section

The Properties section lets you edit information for new instruments, or instrument currently selected in the Instrument list.



MIDI Studio Setup Properties section

When a previously defined instrument is selected in the Instrument list, the Properties section changes to reflect the properties of the selected instrument.

To define an instrument with MIDI Studio Setup:

1 Choose Setup > MIDI > MIDI Studio.

2 Click Create.

3 In the Instrument Name field, type the name of your instrument, and press Enter.

If you do not enter an instrument name, the Instrument Name field will automatically inherit information from the Manufacturer and Model pop-up menu.

4 Set a manufacturer and model for the new device from the corresponding pop-up menus. If the Manufacturer and Model pop-up menus do not provide a name for your particular device, choose None.

5 From the Input pop-up menu, choose the input port on your MIDI interface that is connected to the MIDI Out of your instrument.

6 From the Output pop-up menu, choose the output port on your MIDI interface that is connected to the MIDI In of your instrument.

7 Enable the appropriate MIDI channels (1–16) for the Send Channels and Receive Channels options (These determine which channels send and receive MIDI.)

Instrument Name

The Instrument Name field shows the user-definable instrument name for the currently selected instrument.

Manufacturer

The Manufacturer pop-up menu provides a list of MIDI equipment manufacturers. This list is derived from the XML-based MIDI device files.

For more information, see "MIDI Patch Name Support" on page 57.

Model

The Model pop-up menu provides a list of MIDI devices, filtered by the manufacturer name. This list is derived from the XML-based MIDI device files provided with your Pro Tools installation.

For more information, see "MIDI Patch Name Support" on page 57.

Input Port

The Input Port pop-up menu displays a list of available MIDI interface input ports. Inputs will include Mbox 2 and any additional MIDI interfaces enabled on your system. The MIDI interface port that is set and displayed here is the port through which MIDI data is sent from the external MIDI device specified in the Instrument Name field into your MIDI interface.

If you set the input port to None, the defined instrument will not appear as a choice in a MIDI Input selector.

Output Port

The Output Port pop-up menu displays a list of available MIDI interface output ports. The port set and displayed here is the port through which MIDI data is sent from your MIDI interface to the MIDI device specified in the Instrument Name field.

If you set the output port to None, the defined instrument will not appear as a choice in a MIDI Output selector.

Send Channels

The Send Channels grid sets the send channels for the MIDI device specified in the Instrument Name field.

Receive Channels

The Receive Channels grid sets the receive channels for the MIDI device specified in the Instrument Name field.

MIDI Patch Name Support

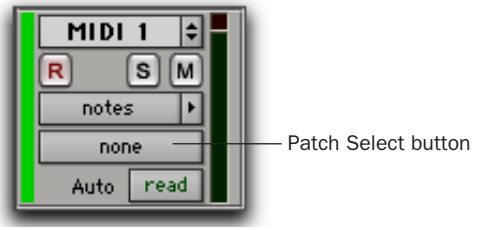
Pro Tools supports XML (Extensible Markup Language) for storing and importing patch names for your external MIDI devices. Pro Tools installs MIDI patch name files (.midnam) for the factory default patch names of many common MIDI devices. These files reside in directories, sorted by manufacturer, in Program Files\Common Files\Digidesign\MIDI Patch Names\Digidesign.

To import MIDI patch names into Pro Tools:

1 Verify the MIDI Device name in the MIDI Studio Setup window (see "MIDI Studio Setup" on page 55).

2 Verify the MIDI track's output is correctly assigned to the MIDI device.

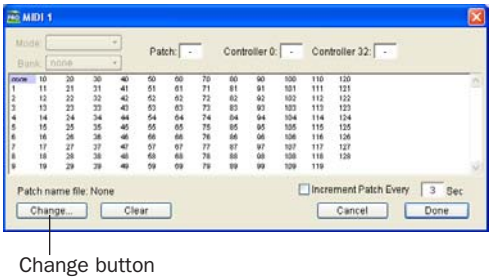
3 Click the MIDI track's Patch Select button.



Patch Select button, Edit window

Patch Select button, Mix window

4 In the Patch Select dialog, click the Change button.

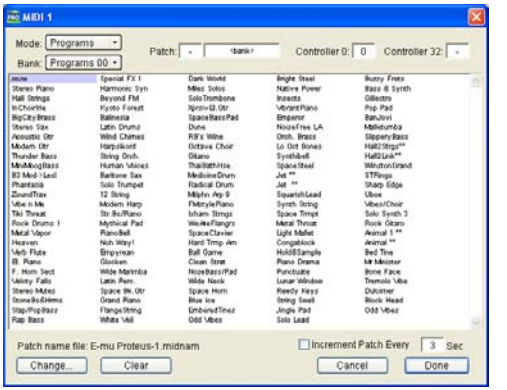


Patch Select dialog

5 In the Open dialog, navigate to Program Files\Common Files\Digidesign\MIDI Patch Names\Digidesign\<name of manufacturer>, and select the MIDI Patch Name file (.midnam) for the MIDI device.

6 Click Open.

The Patch Select dialog is populated with patch names and the Patch Name Bank pop-up menu appears in the upper left hand corner of the window.



Patch Select dialog with patch names

Once patch names have been imported into Pro Tools, they are available for that MIDI device in all sessions.

To clear patch names:

■ In the Patch Select dialog, click the Clear button, and click Done.

MIDI patch name files (.midnam) can be edited in any text editor, or you can use third party patch librarian and editor software to create your own custom patch names.

appendix b

Configuring AMS (Mac OS X Only)

Audio MIDI Setup

Pro Tools recognizes the ports on your MIDI interface as generic ports. With Mac OS X, you use Apple's Audio MIDI Setup (AMS) utility to identify external MIDI devices connected to your MIDI interface and configure your MIDI studio for use with Pro Tools.

To configure your MIDI studio in AMS:

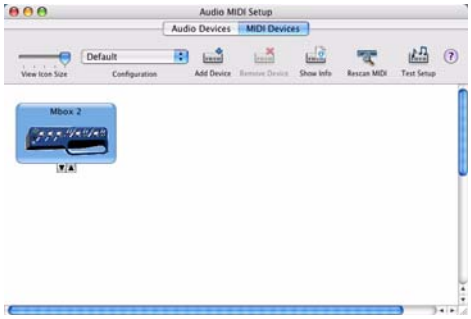
1 Do one of the following:

- Launch Audio MIDI Setup (located in Applications/Utilities).

– or –

- In Pro Tools, choose Setup > MIDI > MIDI Studio.

2 Click MIDI Devices. AMS scans your system for connected MIDI interfaces. If your MIDI interface is properly connected, it appears in the window with each of its ports numbered.



Audio MIDI Setup (MIDI Devices)

3 For any MIDI devices connected to the MIDI interface, click Add Device. A new external device icon with the default MIDI keyboard image will appear.

4 Drag the new device icon to a convenient location within the window.

5 Connect the MIDI device to the MIDI interface by clicking the arrow for the appropriate output port of the device and dragging a connection or "cable" to the input arrow of the corresponding port of the MIDI interface.

Making MIDI input and output connections

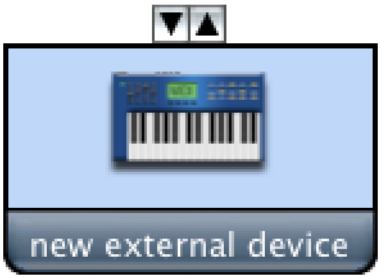
6 Click the arrow for the appropriate input port of the device and drag a cable to the output arrow of the corresponding port of the MIDI interface.

To *remove a connection, select the cable and press Delete. To delete all connections, click Clear Cables.*

7 Repeat steps 3–6 for each MIDI device in your MIDI setup.

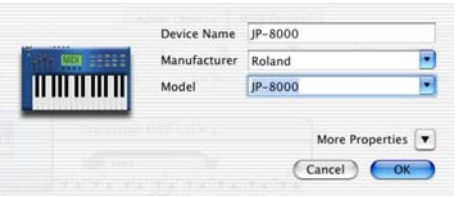
To configure an external MIDI device:

1 Select the external device icon and click Show Info (or double-click the new device icon).



External Device Icon

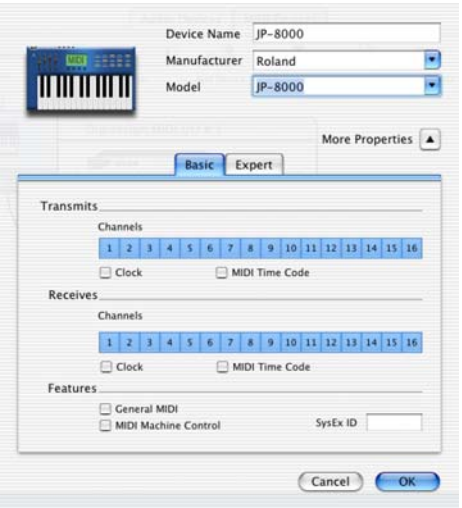
2 Select a manufacturer and model for the new device from the corresponding pop-up menus. (If the Manufacturer and Model pop-up menus do not provide a name for your particular device, you can type a name.)



Naming a new MIDI device

For Manufacturer and Model names, AMS refers to one or more files with the suffix ".middev" in the directory Root/Library/Audio/MIDI Devices. Pro Tools installs a file that contains information for many commercially available MIDI devices, named "Digidesign Device List.middev." If the Manufacturer or Model names for any of your external MIDI devices is not available in the AMS Manufacturer and Model pop-up menus, you can add them by editing the .middev file in any text editor (such as TextEdit).

3 Click the More Properties arrow to expand the dialog, then enable the appropriate MIDI channels (1–16) for the Transmits and Receives options. (These determine which channels the device will use to send and receive MIDI.)



Enabling MIDI channels

4 Click the device image. The window expands to show images for various MIDI devices (such as keyboards, modules, interfaces, and mixers). Select an icon for your device.

Selecting a device icon

To use your own custom icons, you can place TIFF image files in /Library/Audio/MIDI Devices/Generic/Images, and they will appear as choices in the AMS device window.

5 Click OK.

The device names you enter appear as MIDI input and output choices in Pro Tools.

MIDI Patch Name Support

Pro Tools supports XML (Extensible Markup Language) for storing and importing patch names for you external MIDI devices. Pro Tools installs MIDI patch name files (.midnam) for the factory default patch names of many common MIDI devices. These files reside in directories, sorted by manufacturer, in /Library/Audio/MIDI Patch Names/Digidesign.

To import MIDI patch names into Pro Tools:

1 Verify the MIDI Device name in the Audio MIDI Setup window (see "Audio MIDI Setup" on page 59).

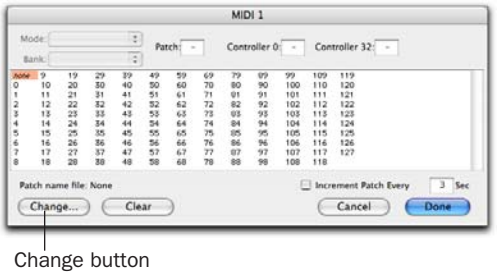
2 Verify the MIDI track's output is correctly assigned to the MIDI device.

3 Click the MIDI track's Patch Select button.

Patch Select button, Edit window

Patch Select button, Mix window

4 In the Patch Select dialog, click the Change button.



Patch Select dialog

5 In the Open dialog, navigate to /Library/Audio/MIDI Patch Names/Digidesign/<name of manufacturer>, and select the MIDI Patch Name file (.midnam) for the MIDI device.

6 Click Open.

The Patch Select dialog is populated with patch names and the Patch Name Bank pop-up menu appears in the upper left hand corner of the window.

Once patch names have been imported into Pro Tools, they are available for that MIDI device in all sessions.

To clear patch names:

■ In the Patch Select dialog, click the Clear button, and click Done.

MIDI patch name files (.midnam) can be edited in any text editor, or you can use third party patch librarian and editor software to create your own custom patch names.

appendix c

Hard Drive Configuration and Maintenance

It is recommended that you start with a newly formatted external or secondary internal audio drive. You should also periodically defragment your audio drive to ensure continued system performance.

⚠ *Always back up any important data on your drive before formatting it, as it will erase all data on the drive.*

Avoid Recording to the System Drive

Recording to your system drive is not recommended. Recording and playback on a system drive may result in lower track counts or fewer plug-ins.

Supported Drive Formats and Drive Types

Drive Formats

Windows Windows XP systems should use drives formatted as NTFS or FAT32 (NTFS preferred).

Windows systems can also support Mac drives formatted with HFS+ system (also commonly referred to as Mac OS Extended). Refer to the Pro Tools Reference Guide for more information.

Mac Mac systems should use drives formatted with HFS+ or HFS file system only.

⚠ *HFS drives are supported as Transfer drives only.*

Hard drive performance depends on factors including system configuration, number of tracks, session sample rate, density of edits, and the use of crossfades and other processes such as Beat Detective in a session.

For complete hard drive requirements, see the Digidesign website (www.digidesign.com).

SCSI Hard Drives

Digidesign recommends qualified SCSI hard drives and a qualified SCSI host bus adapter (HBA) card or (on Windows systems) a qualified built-in SCSI HBA connector on the motherboard.

For complete information on track count and the supported number and configuration of SCSI drives, visit the Digidesign website (www.digidesign.com).

FireWire Hard Drives

Digidesign recommends qualified FireWire drives and (on Windows systems) a qualified FireWire host adapter.

For complete information on track count and the supported number and configuration of FireWire drives, visit the Digidesign website (www.digidesign.com).

IDE/ATA/SATA Hard Drives

A qualified internal IDE/ATA/SATA drive may be used as a dedicated audio drive.

For complete information on track count with internal drives, refer to the Digidesign website (www.digidesign.com).

Formatting an Audio Drive

Formatting Windows Audio Drives

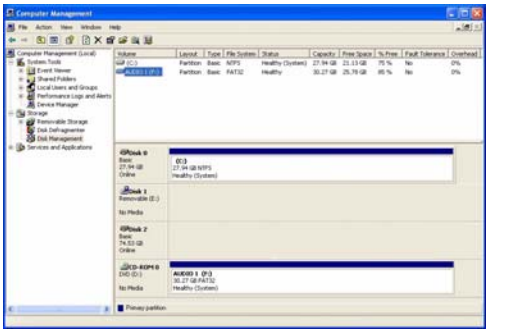
(Windows Only)

For optimal performance, audio drives should be formatted as FAT32 or NTFS.

To format an audio drive:

1 Right-click My Computer and choose Manage.

2 Under Storage, choose Disk Management.



Disk Management window (Windows XP)

3 If the volume is "Healthy," do the following:

Healthy volumes are volumes that have previously been partitioned and formatted.

- In the Disk Management window, right-click the hard drive you will use for audio and choose Format.
- In the Format window, name the volume.
- Choose a file system. For optimum performance, audio drives should be formatted as NTFS. (FAT32 is also supported.)

⚠ *Windows Disk Management can only create FAT32 volumes 32 GB or smaller. To create FAT32 volumes greater than 32 GB (up to 2 TB). use a third part utility (such as Swiss Knife or Partition Magic).*

- Select "Perform a quick format."
- Make sure "Enable file and folder compression" is not selected.
- Set the Allocation unit size to Default.
- Click OK.

⚠ *Pro Tools only supports Basic drive types. Do not convert the drive to a Dynamic type.*

4 If the volume is "Unallocated," do the following:

- In the Disk Management window, right-click the hard drive you will use for audio and choose New Partition.
- In the New Partition Wizard window, click Next.
- When prompted, select the partition type.

Digidesign recommends using Primary partitions, instead of Extended partitions.

- Follow the on-screen instructions to select a partition size and other partition settings.
- When prompted, choose a file system. For optimum performance, audio drives should be formatted as NTFS. (FAT32 is also supported.)

⚠ *Windows Disk Management can only create FAT32 volumes 32 GB or smaller. To create FAT32 volumes greater than 32 GB (up to 2 TB). use a third part utility (such as Swiss Knife or Partition Magic).*

- Select "Perform a quick format."
- Make sure "Enable file and folder compression" is not selected.
- Set the Allocation unit size to Default.
- Click OK.

⚠ *Pro Tools only supports Basic drive types. Do not convert the drive to a Dynamic type.*

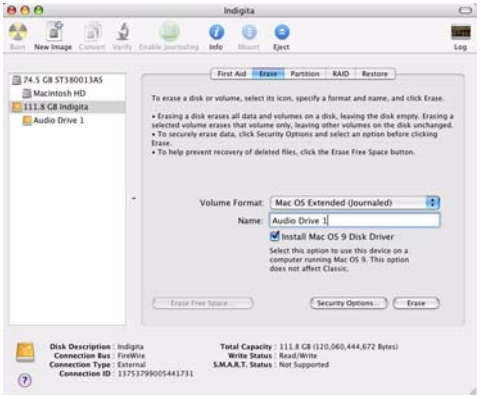
Formatting Mac Audio Drives

(Mac Only)

For optimum performance, audio drives should be formatted as Mac OS Extended (Journaled).

To format an audio drive:

1 Launch the Disk Utility application, located in Applications/Utilities.



Disk Utility (Mac OS X)

2 Click the Erase tab.

3 Select the drive you want to initialize in the column on the left side of the window.

4 Choose the Mac OS Extended (Journaled) format.

⚠ *Do not choose the "Case-Sensitive" format option. Pro Tools will not operate properly with case-sensitive formatted drives.*

5 Type a name for the new volume.

6 If you plan to connect the drive to a Mac OS 9 computer, select Install Mac OS 9 Drivers.

7 Click Erase.

The drive appears on the Desktop with the new volume name.

Partitioning Drives

Partitioning creates a logical volume or volumes on a physical drive, almost as if you were creating virtual hard drives. Partitions can then be formatted with the appropriate file system (NTFS or FAT32 for Windows, HFS+ for Mac).

FAT32 drive partitions have a limit of 2 terabytes (2000 gigabytes), whereas NTFS drive partition sizes are almost limitless.

⚠ *Windows XP allows drives formatted with the NTFS or FAT32 file systems to be seen as whole volumes. Single Pro Tools audio files cannot exceed 2048 MB in size.*

⚠ *Mac OS allows drives larger than 4096 MB to be seen as whole volumes. Drives must be initialized with a disk utility that recognizes the 2 terabyte limit. Single Pro Tools audio files cannot exceed 2048 MB in size.*

Seek Times on Partitioned Drives

Seek times are actually faster on partitioned drives (assuming that reads and writes are performed on a single partition), since the heads only have to seek within the partition boundaries, rather than the whole capacity of the drive.

Smaller partitions perform faster than larger partitions, but this comes at the expense of contiguous storage space. When you partition a drive, you will need to find the compromise that best suits your performance and storage requirements.

⚠ *Avoid distributing audio files within a session over different partitions on the same drive since this will adversely affect drive performance.*

Defragmenting an Audio Drive

Mac Systems

When working with larger files (such as video), you can limit fragmentation by backing up your important files to another disk, erasing the files from the original hard disk, then copying the files back, instead of doing a defragmentation.

Window Systems

Periodically *defragment* audio drives to maintain system performance.

For maximum recording and playback efficiency, data should be written to your hard drive in a contiguous fashion—minimizing the seek requirements to play back the data. Unfortunately, your computer can't always store the sound files in this way and must write to disk wherever it can find space.

In multitrack recording, audio tracks are written in discrete files, spaced evenly across the disk. While fragmentation of individual files may be zero, the tracks may be far enough apart that playback will still be very seek-intensive. Also, the remaining free space on the disk will be discontiguous, increasing the likelihood of file fragmentation on subsequent record passes.

Increased fragmentation increases the chance of disk errors, which can interfere with playback of audio, and result in performance errors.

On Windows, to avoid fragmentation, format drives with higher cluster sizes (such as 32K).

Optimizing (Defragmenting) Drives

To prevent fragmentation, you can optimize your drive, which rearranges your files into a contiguous format. Most optimizing software lets you run a check on a drive to find out the percentage of fragmentation. If your drive shows moderate to heavy fragmentation, you should consider optimizing it.

If you use your system for intensive editing, or if you frequently delete audio or fade files from your hard drive, you may need to optimize your drives on a weekly basis, or even every few days, since it doesn't take long for even a large hard drive to become fragmented.

Backing Up Data Before Optimizing

Since your files will be rewritten by the optimization process, always make a backup copy of the data on your hard drive before you optimize it. You should also use a hard drive utility to find and repair any problems before optimizing data or re-initializing your drives. If there is any damage to your hard drive's directories prior to optimizing, serious data loss may result.

Defragmenting Windows Audio Drives

To defragment an audio drive (Windows):

1 Right-click My Computer and choose Manage.

2 Under Storage, choose Disk Defragmenter.

3 In the Disk Defragmenter window, choose the drive you want to defragment

4 Click the Defragment button and follow the on-screen instructions.

When defragmenting is complete, close the Computer Management Window.

Using Mac Drives on Windows Systems

Pro Tools for Windows lets you record and play back sessions directly from a Mac-formatted (HFS+) drive connected to a Windows system. This functionality requires that all Mac session and audio files be stored on Mac-formatted drives.

During Pro Tools installation, make sure to select the Mac HFS+ Disk Support option. This option lets your Pro Tools system read, write, record, and play back using Mac-formatted HFS+ disks.

For information on using the Mac HFS+ Disk Support option, see the HFS+ Disk Support Option Guide.

For information on sharing sessions between Mac and Windows systems, see the Pro Tools Reference Guide.

Formatting and Maintaining HFS+ Drives

To format and partition any drives as HFS+, connect the drives to a Mac computer and use the Apple OS X Disk Utility.

Hard Disk Storage Space

Mono audio tracks recorded with 16-bit resolution at 44.1 kHz (CD quality) require approximately 5 MB of hard disk space per minute. The same tracks recorded with 24-bit resolution require about 7.5 MB per minute.

Stereo audio tracks recorded with 16-bit resolution at 44.1 kHz (CD quality) require approximately 10 MB of hard disk space per minute. The same tracks recorded with 24-bit resolution require about 15 MB per minute.

Table 4 lists the required disk space for certain track numbers and track lengths, to help you estimate your hard disk usage.

Table 4. Required hard drive space for audio tracks (44.1 kHz and 48 kHz sessions shown)

Number of Tracks and Length	16-bit at 44.1 kHz	16-bit at 48 kHz	24-bit at 44.1 kHz	24-bit at 48 kHz
1 mono track, 1 minute	5 MB	5.5 MB	7.5 MB	8.2 MB
1 stereo track (or two mono tracks), 5 minutes	50 MB	55 MB	75 MB	83 MB
1 stereo track (or two mono tracks), 60 minutes	600 MB	662 MB	900 MB	991 MB
24 mono tracks, 5 minutes	600 MB	662 MB	900 MB	991 MB
24 mono tracks, 60 minutes	7 GB	7.8 GB	10.5 GB	11.6 GB
32 mono tracks, 5 minutes	800 MB	883 MB	1.2 GB	1.3 GB
32 mono tracks, 60 minutes	9.4 GB	10.4 GB	14 GB	15.4 GB

appendix d

Troubleshooting

Backing Up Your Work

It is highly recommended that you back up your work on a regular basis, and especially before making changes to your system configuration.

Backing Up Your Session Data

Back up your session and audio data frequently. There are a variety of media that are suited to back up projects of various sizes, from automated tape backup systems to high-capacity optical drives, or to CD burners.

The best way to back up an entire session is to use the Save Copy In command. This command lets you save the session file and all of its associated files to a new location.

You can also use the Auto Save Backup feature (in the Operation Preferences page) to have Pro Tools automatically save backups of the session file while you work.

Backing Up Your System Configuration

After configuring your system and Pro Tools, you should save an image of your system drive using a backup utility such as Norton Ghost (Windows) or Bombich Carbon Copy Cloner (Mac). By doing this, you can quickly restore your system configuration and settings if you encounter any problems.

Common Issues

Pro Tools Won't Launch

Problem

When you double-click the Pro Tools application or a Pro Tools session file, Pro Tools doesn't launch, or displays an error message.

Possible Solutions

- Check to be sure your computer has the required amount of RAM to launch Pro Tools. See the latest compatibility information on the Digidesign website (www.digidesign.com).
- Try a complete restart. Turn off your audio interfaces, computer peripherals and your computer, and then turn them on again in the proper sequence.

◆ If you tried to launch Pro Tools by double-clicking a Pro Tools session file, do the following:

- Close any error message.
- Double-click the Pro Tools application.
- In Pro Tools, choose File > Open Session to open the session.

◆ Reinstall the Pro Tools application, using the Pro Tools Installer disc. See your *Getting Started Guide* or *Pro Tools Upgrading Guide* for installation instructions.

Audio Interface Is Not Recognized

Problem

When you launch Pro Tools it does not recognize an audio interface, or a connected audio interface is not available.

Possible Solutions

For the following possible solutions, refer to your Getting Started Guide.

◆ Turn off your computer and check to be sure your cables are properly and securely connected to your computer and to your audio interface.

◆ Verify that your Hardware Setup dialog settings are correct.

Performance Factors

There are several conditions that may adversely affect the performance of Pro Tools. These include:

Network Connections Close any network connections unless you are using them for network interchange of audio data.

Background Applications Any software utilities that run in the background or generate disk activity, such as virus protection, disk optimization, or file savers, should be turned off or removed.

Screen Savers Screen saver software should be completely disabled on your computer before running Pro Tools.

Power Saver Features Some automatic power saver features, such as those that spin down the system hard drive, can affect Pro Tools performance. These features should be turned off.

Before You Call Digidesign Technical Support

Register Your System

Register your purchase immediately after reviewing the Digidesign Registration Information Card included with every Pro Tools system. Registering your purchase is the only way you become eligible to receive complimentary technical support and future upgrade offers. Registering is one of the most important steps to complete as a new user.

Use Digidesign Resources

In addition to the printed and PDF versions of Pro Tools guides, your system includes the following sources of information:

Read Me Files These contain late-breaking information and known issues pertaining to Pro Tools software and hardware configurations. Read Me files are installed in Documentation folder when you install Pro Tools.

Answerbase This is a database of common problems and DAE errors, and their solutions based on the latest information from Digidesign Technical Support. This database is installed in the Digidesign folder when you install Pro Tools. Answerbase is also available on the Digidesign website (www.digidesign.com).

Website (www.digidesign.com) This is your best online source for information to help you get the most out of your Pro Tools system.

Gather Important Information

Digidesign wants to help you resolve problems as quickly and efficiently as possible. If you have the following information handy when you contact Technical Support, it will make the diagnosis of your problem easier. Take a few minutes to collect the following basic information:

System Information

Computer

- Make, model, processor speed
- Amount of system RAM
- Operating system (version of Windows or Mac OS)
- Any Drivers, Disk Utilities, or other system-related applications you may have installed

Digidesign Hardware

- Type of cards, interfaces, or peripherals

Hard Drives

- Make, Model
- Drive size (GB)
- Drive speed (RPM)
- Drive type (SCSI, FireWire, IDE/ATA)
- Utility used to format the drive
- Number and size of partitions on the drive

Digidesign Software

- Pro Tools software version
- Plug-in versions
- Other Digidesign software
- Additional plug-ins from Digidesign Development Partners

Other Hardware

Refer to the manufacturer's documentation for operational details.

The most common hardware additions include:

- 1394 (FireWire) cards for Windows systems (manufacturer, model)
- Video Capture cards (manufacturer, model)

To verify that your hardware is qualified for use with your Pro Tools system, refer to the latest compatibility information on the Digidesign website (www.digidesign.com).

Other Software

If you are using other audio or video applications, refer to the manufacturer's documentation for operational details.

Make note of any other software that was running when a problem occurred.

Diagnostic Information

Note any DAE errors or other error codes you encounter. Additonally, note the ability to reproduce the problem under different conditions, for example, with another session, or after changing settings (such as the Hardware Buffer Size).

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